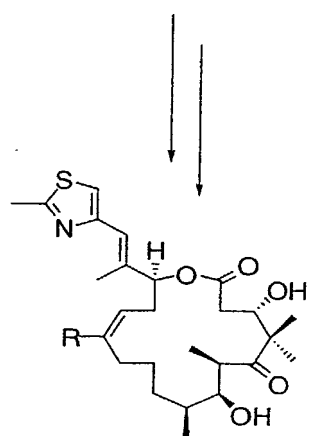
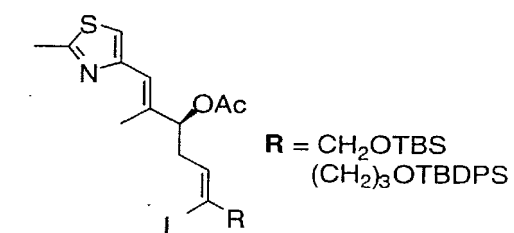
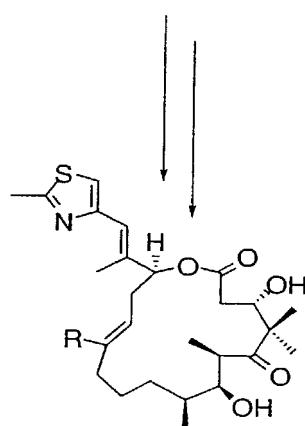
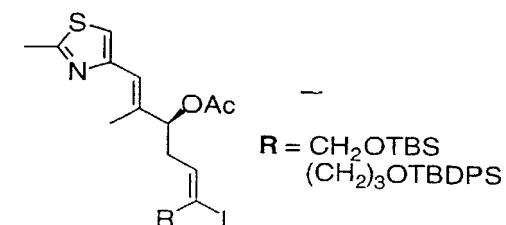
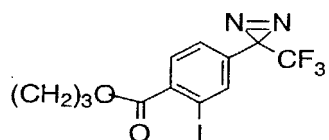
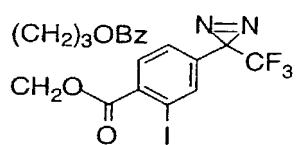


Figure 1



$\text{R} = \text{CH}_2\text{OH}$

$(\text{CH}_2)_3\text{OH}$



$\text{R} = \text{CH}_2\text{OH}$
 $(\text{CH}_2)_3\text{OH}$

Figure 2

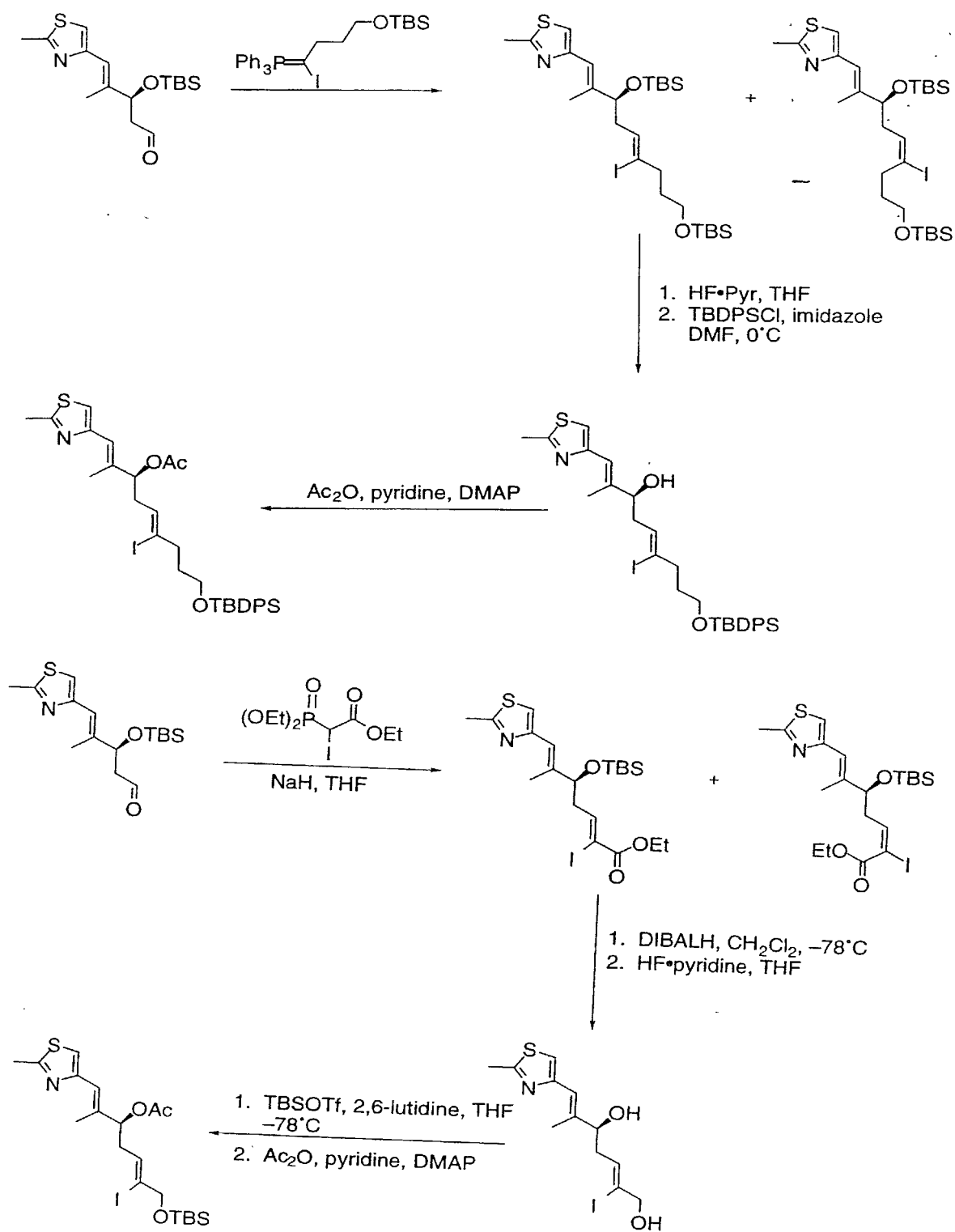


Figure 3(A)

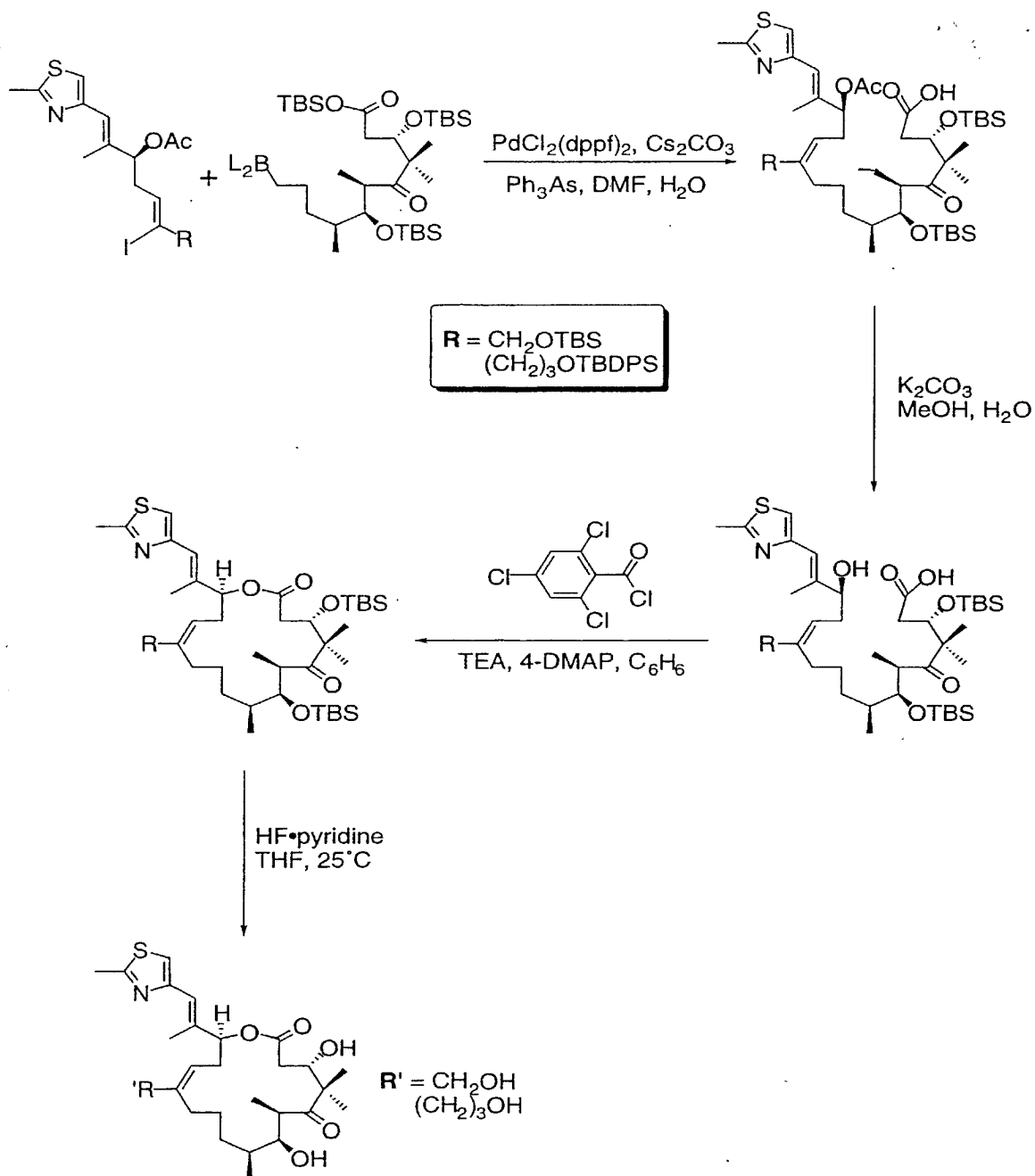


Fig. 3(B)

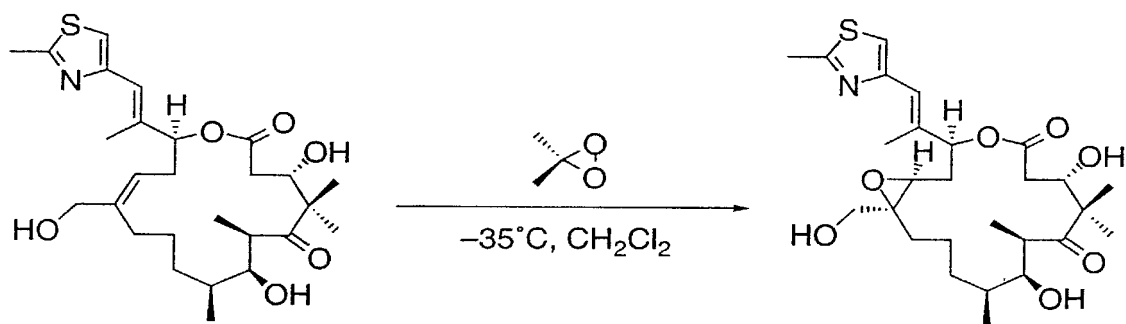
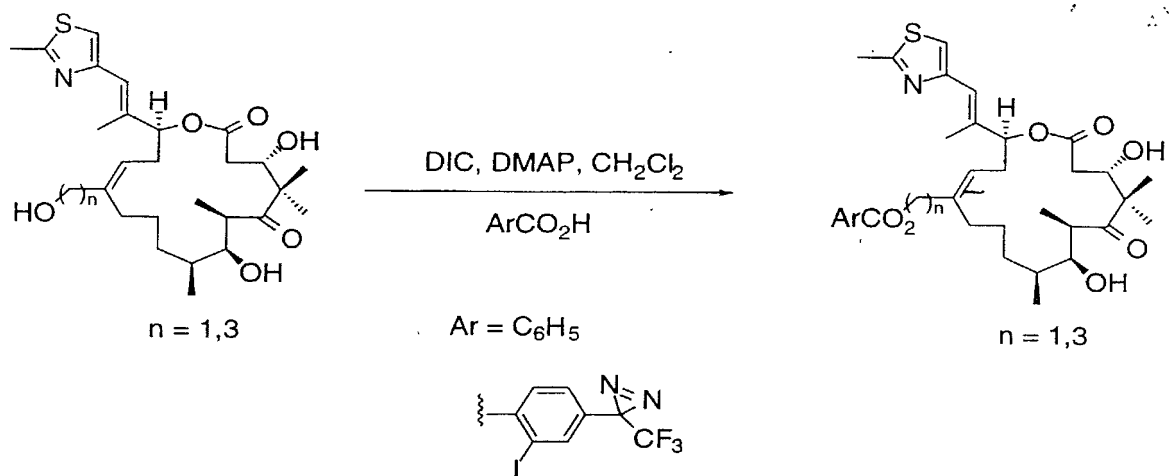


Fig. 3(C)

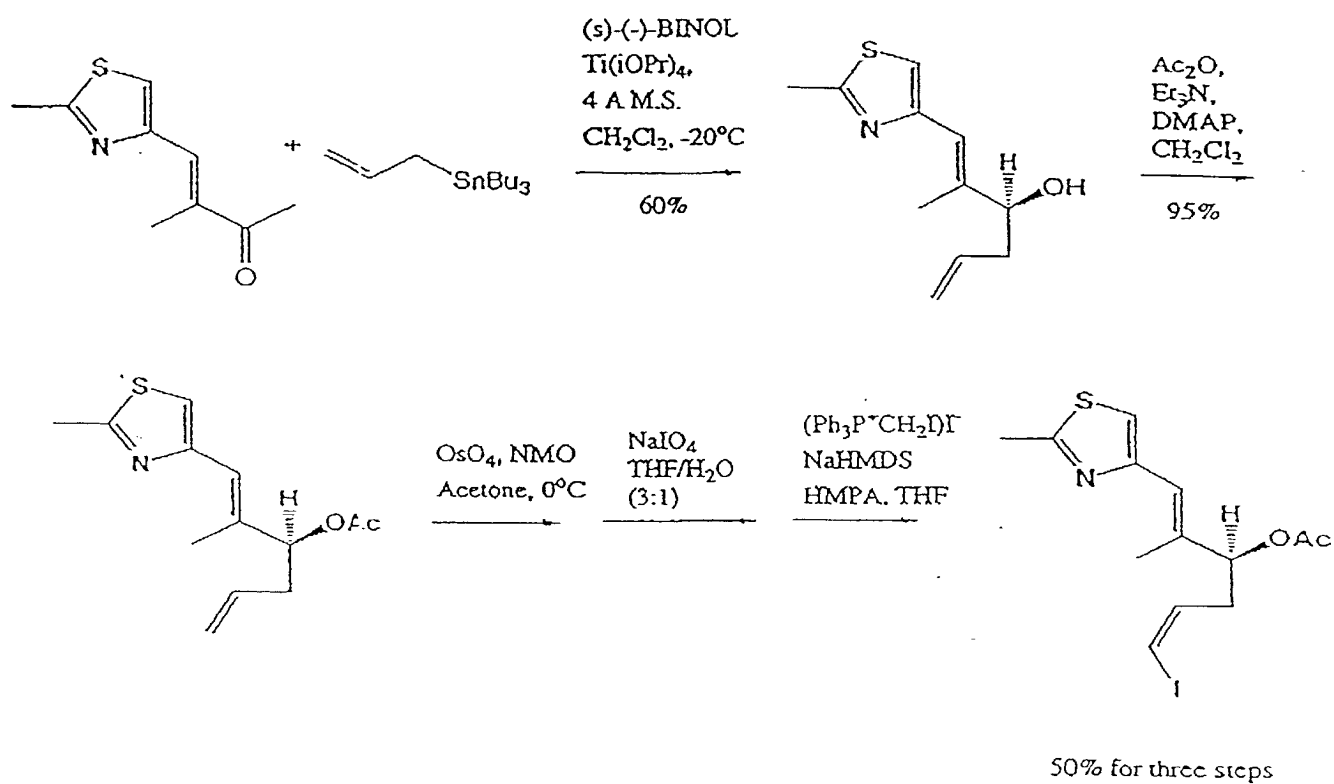
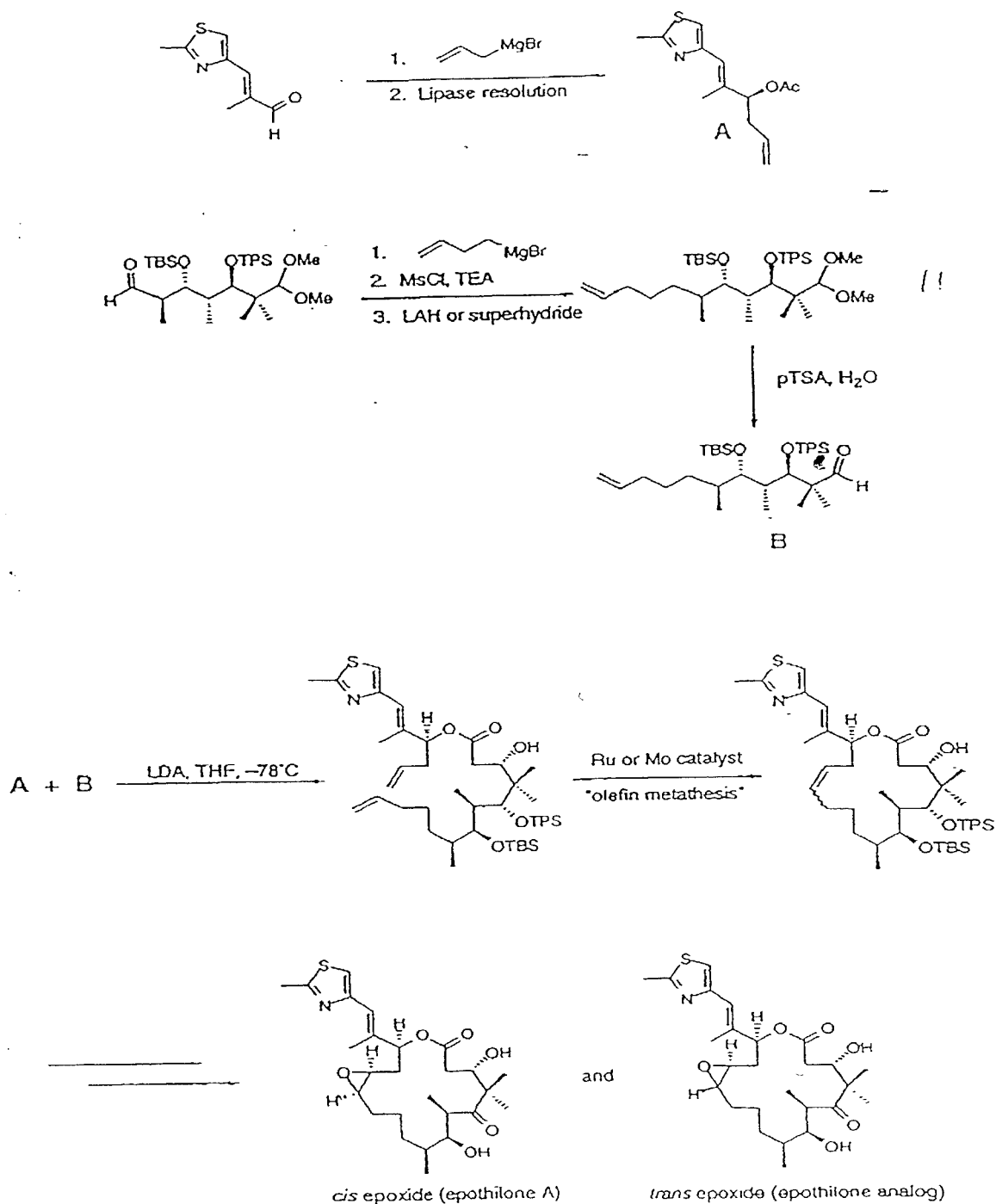
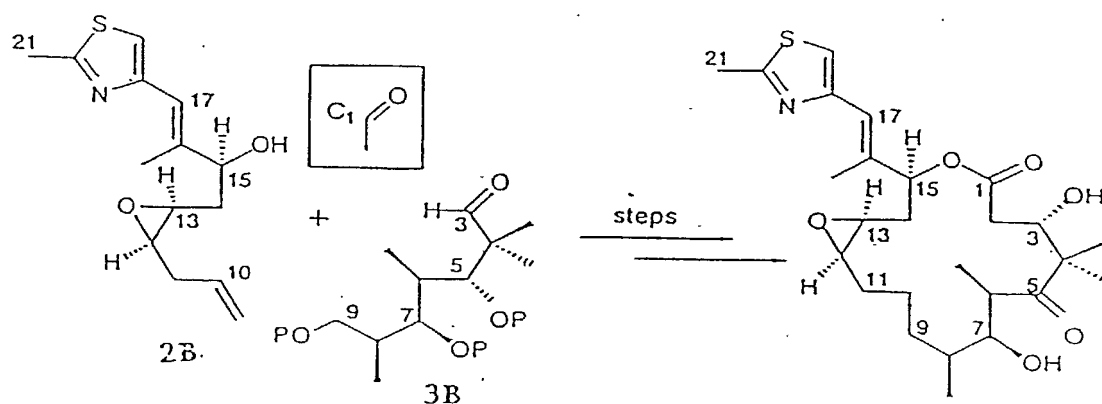


Figure 5



* 17 steps from known starting materials vs. 27 steps for aldol macrocyclization

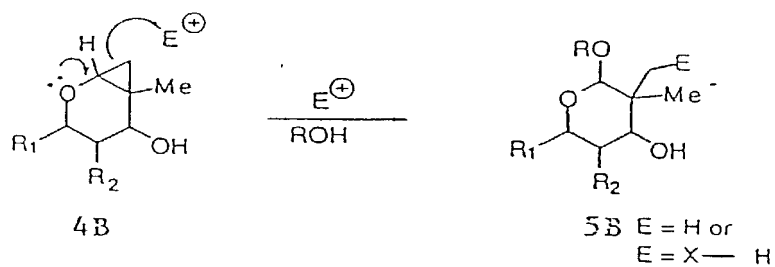
Figure 6



P = unspecified protecting group

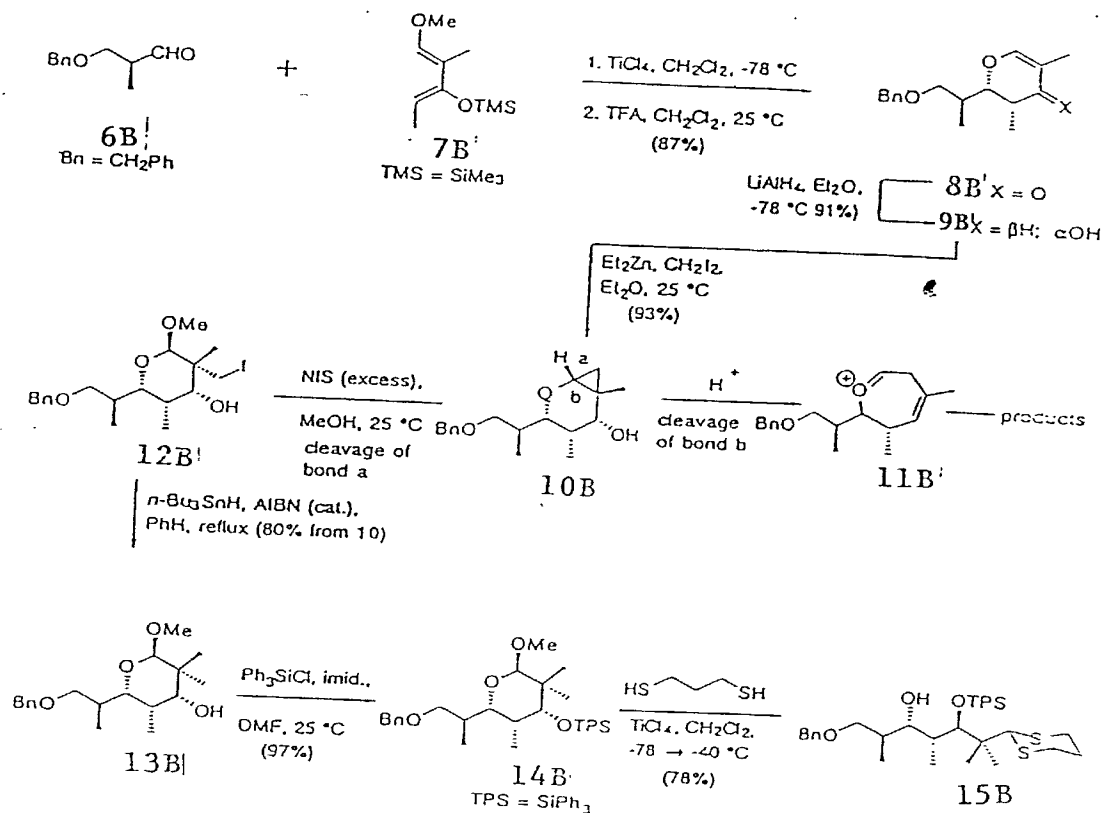
1 : epothilone A

Convergent strategy for a total synthesis of epothilone A (1).



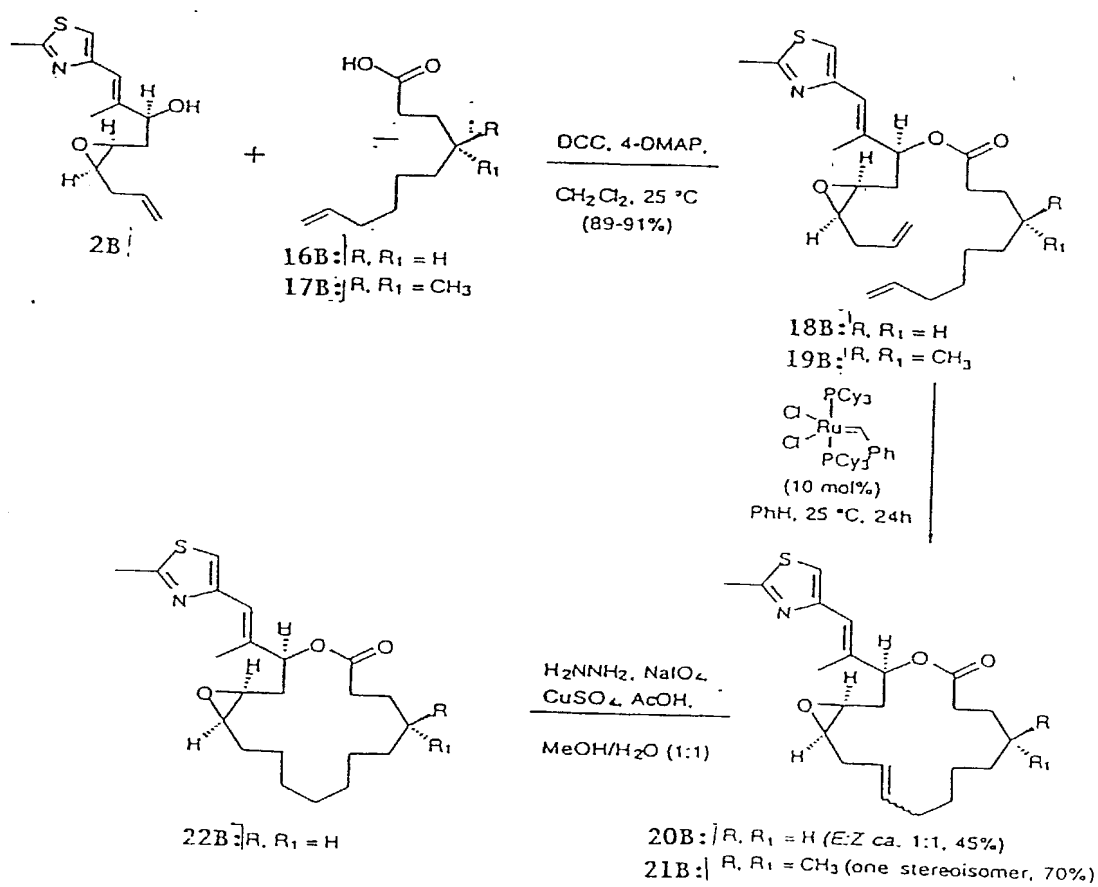
The glycol cyclopropane solvolysis strategy for the introduction of geminal methyl groups.

Figure 7



Enantioselective synthesis of compound 15B

Figure 8



Construction of epothilone model systems 20^B, 21^B, and 22^B by ring-closing olefin metathesis

Figure 9

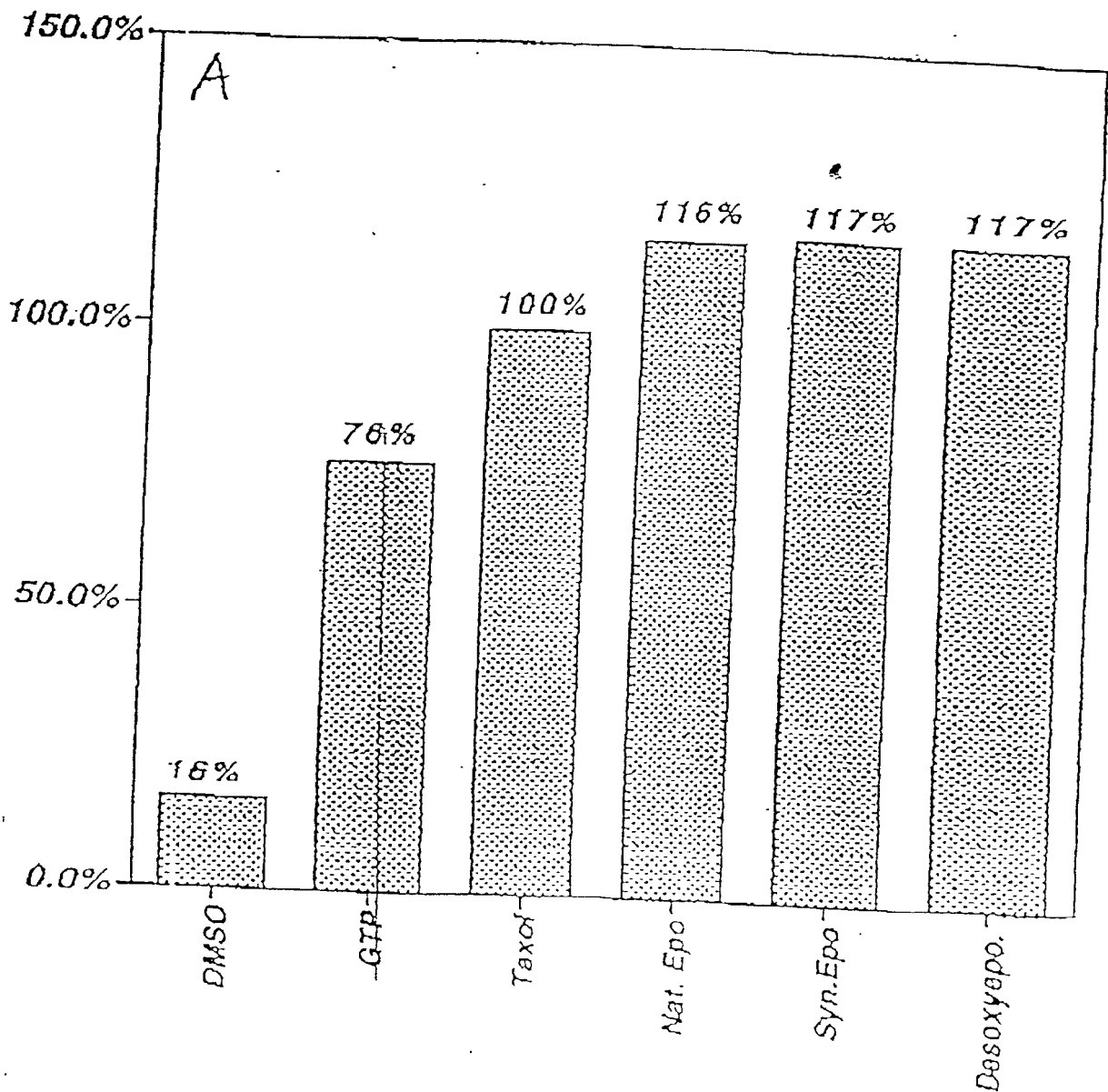


Figure 10

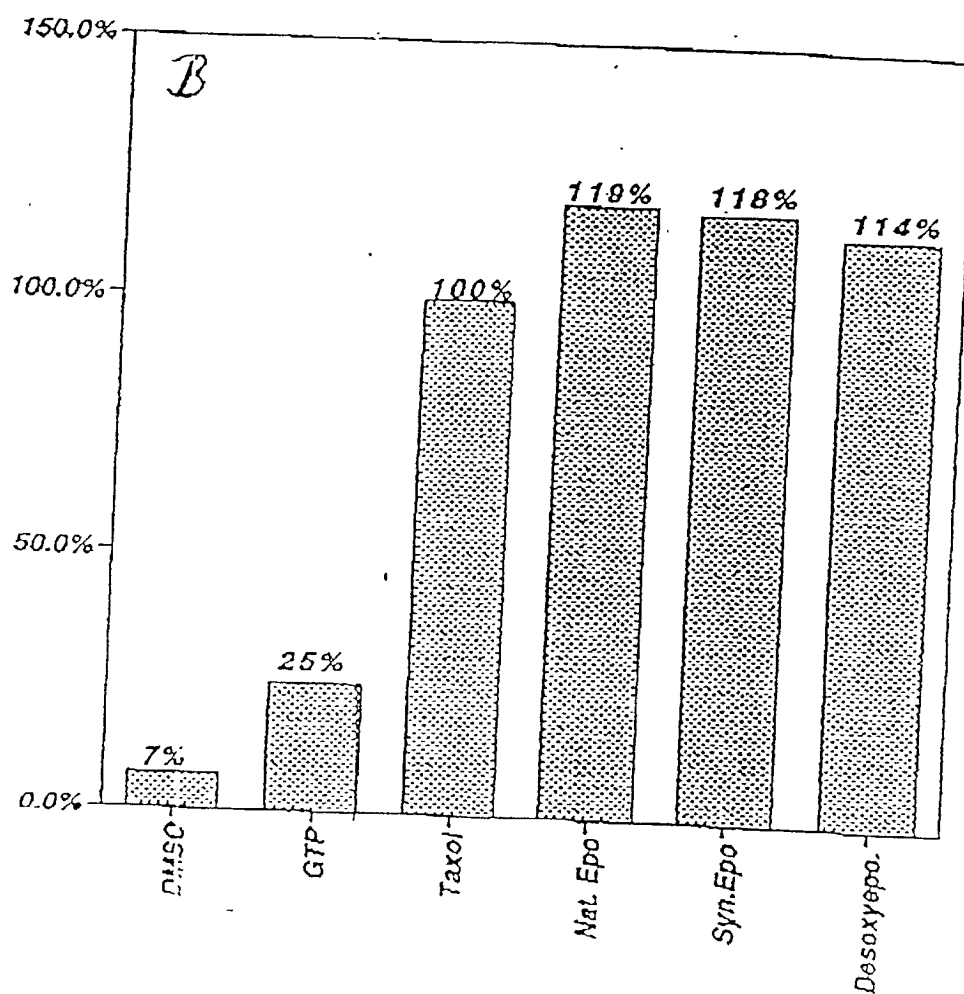


Figure 11

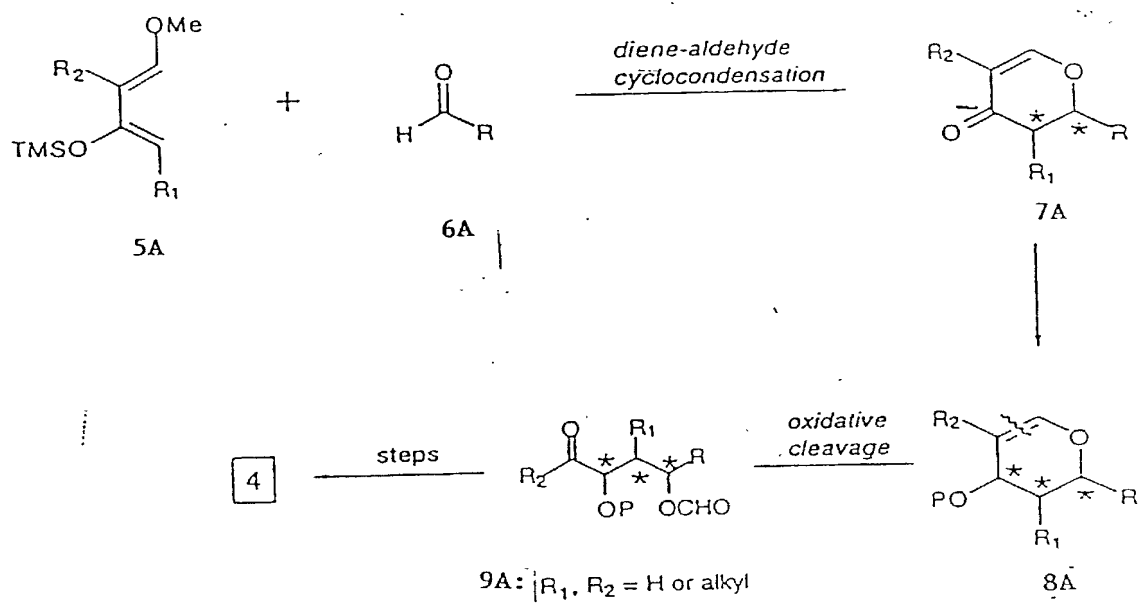


Figure 13

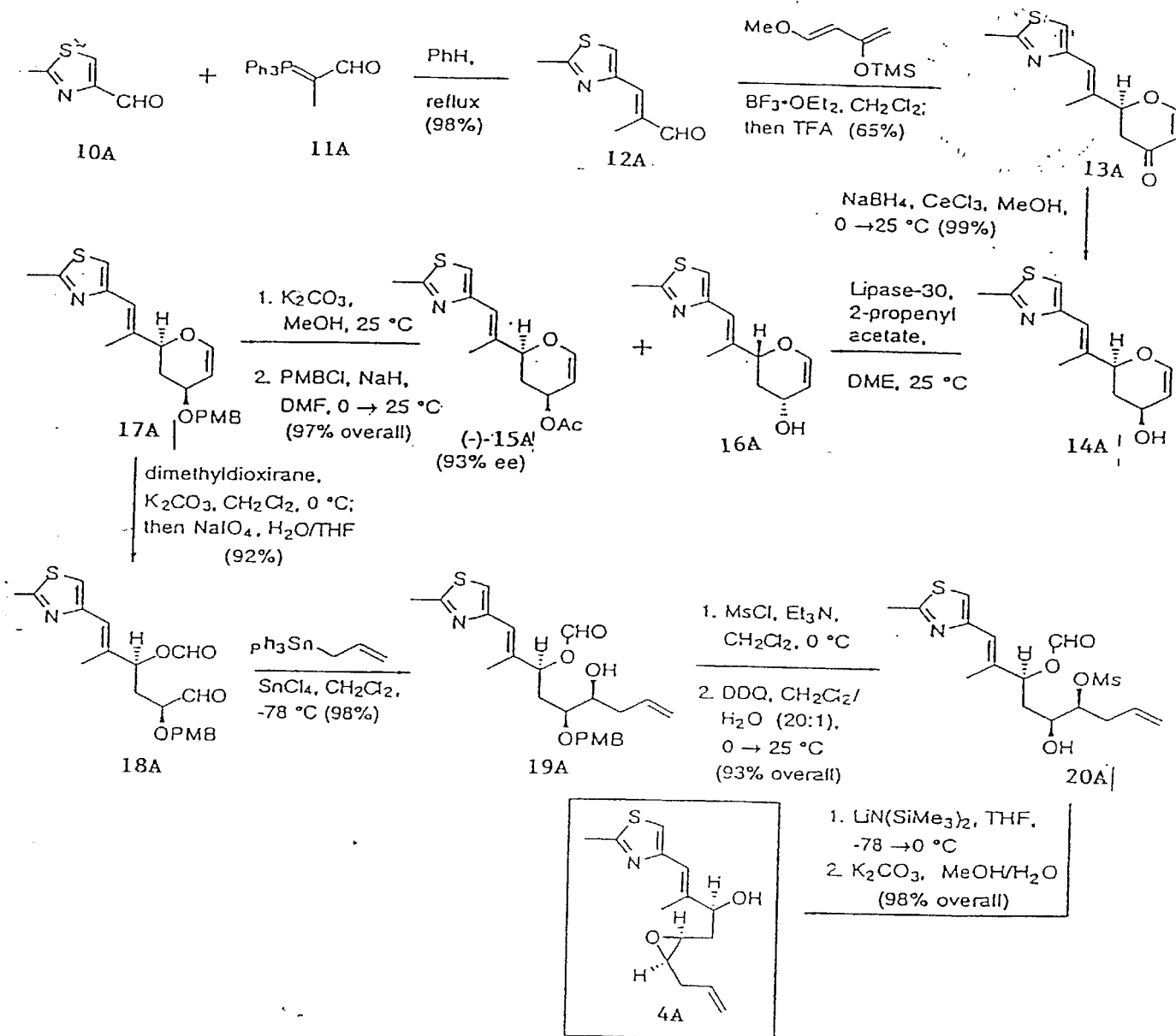


Figure 14

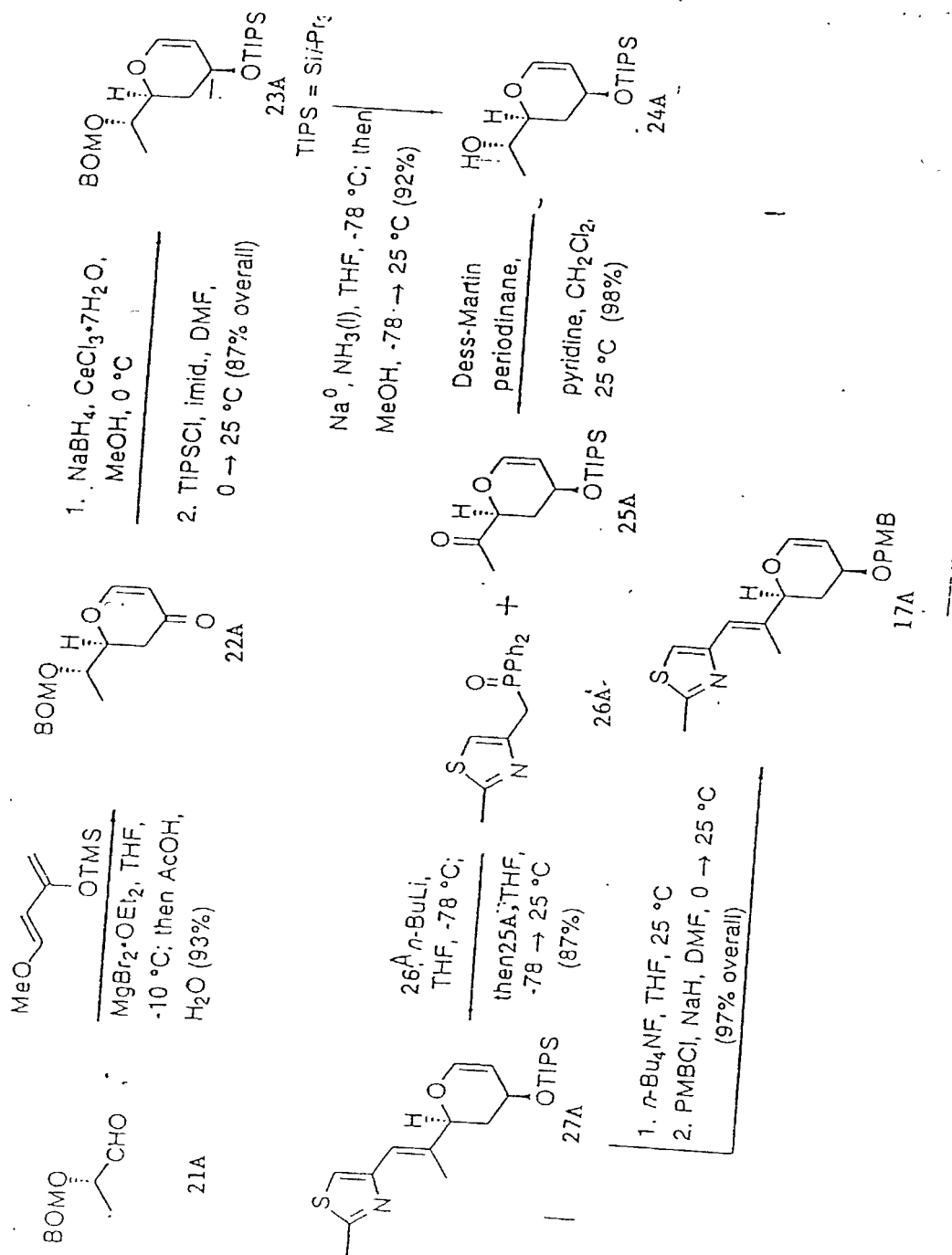


Figure 15

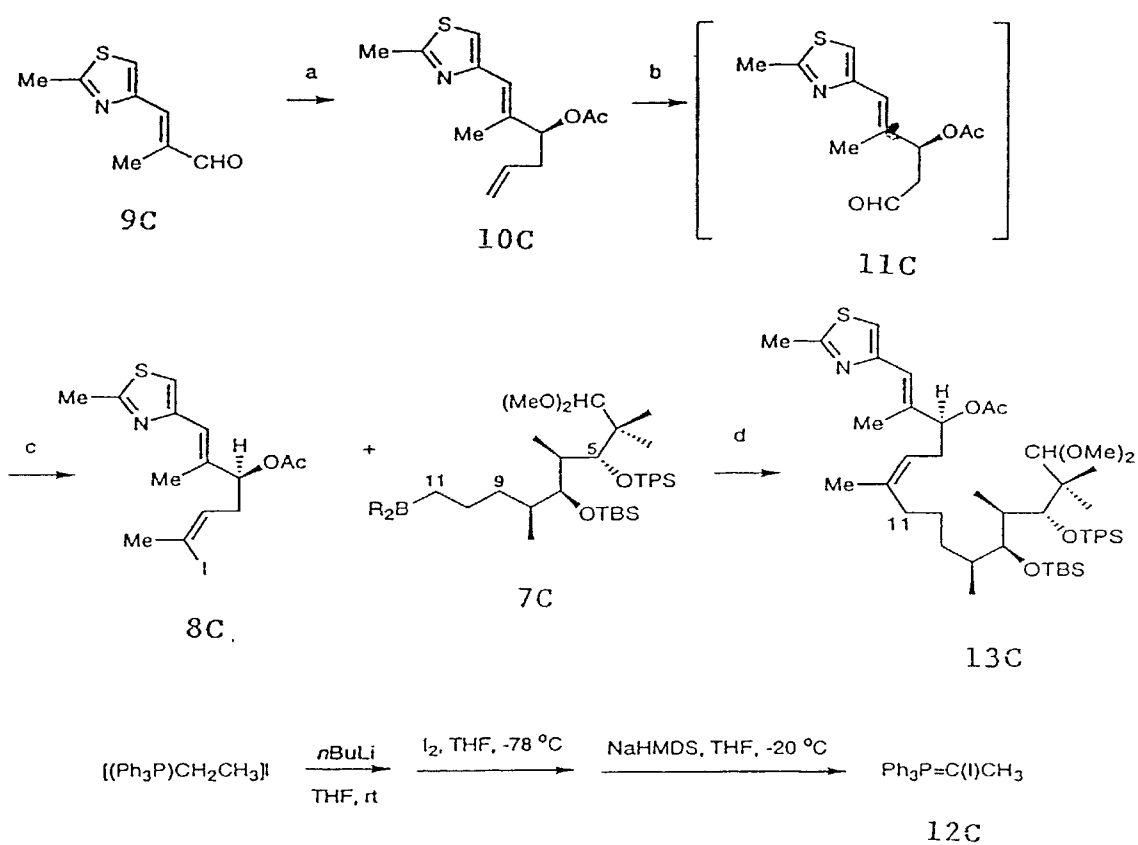


Figure 16

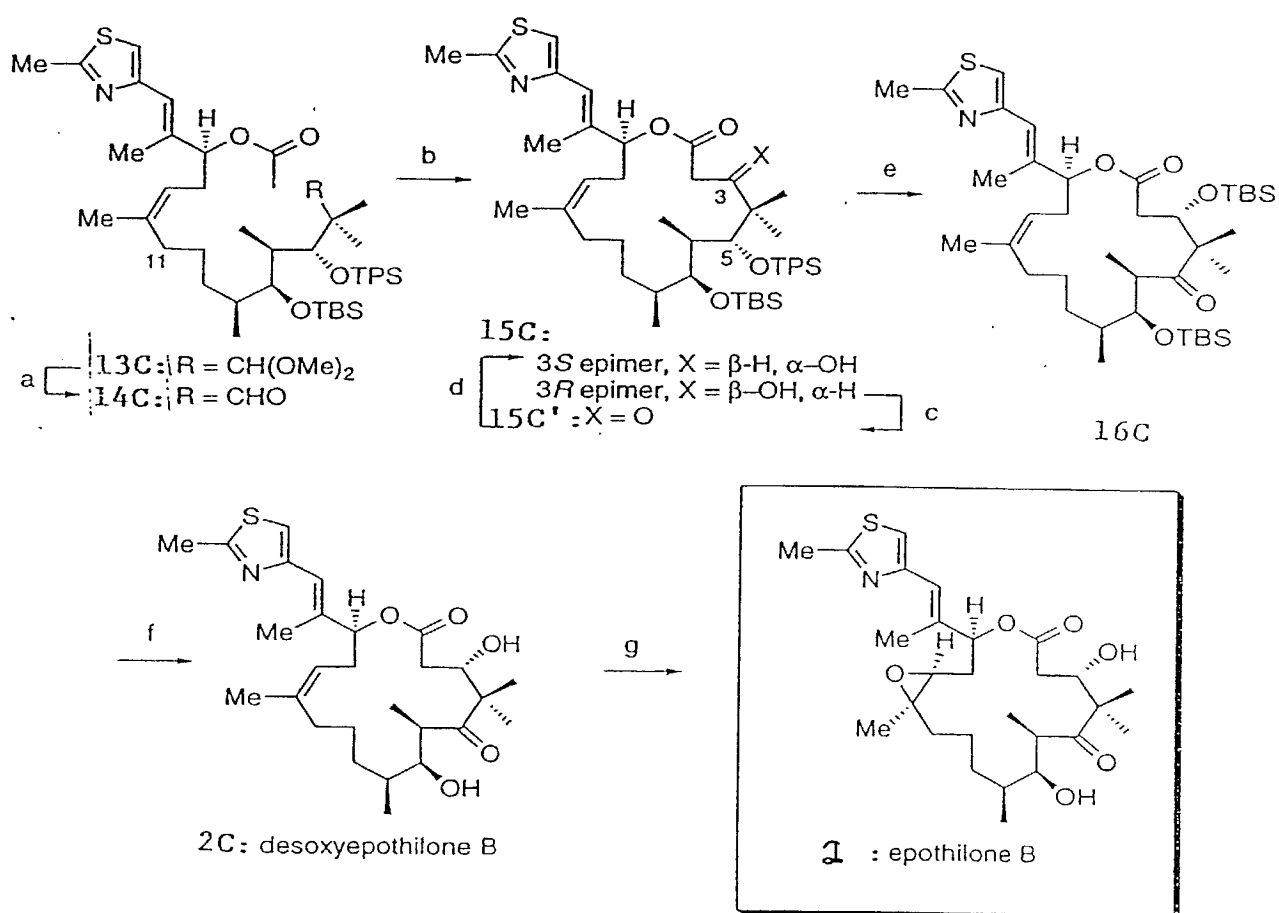


Figure 17

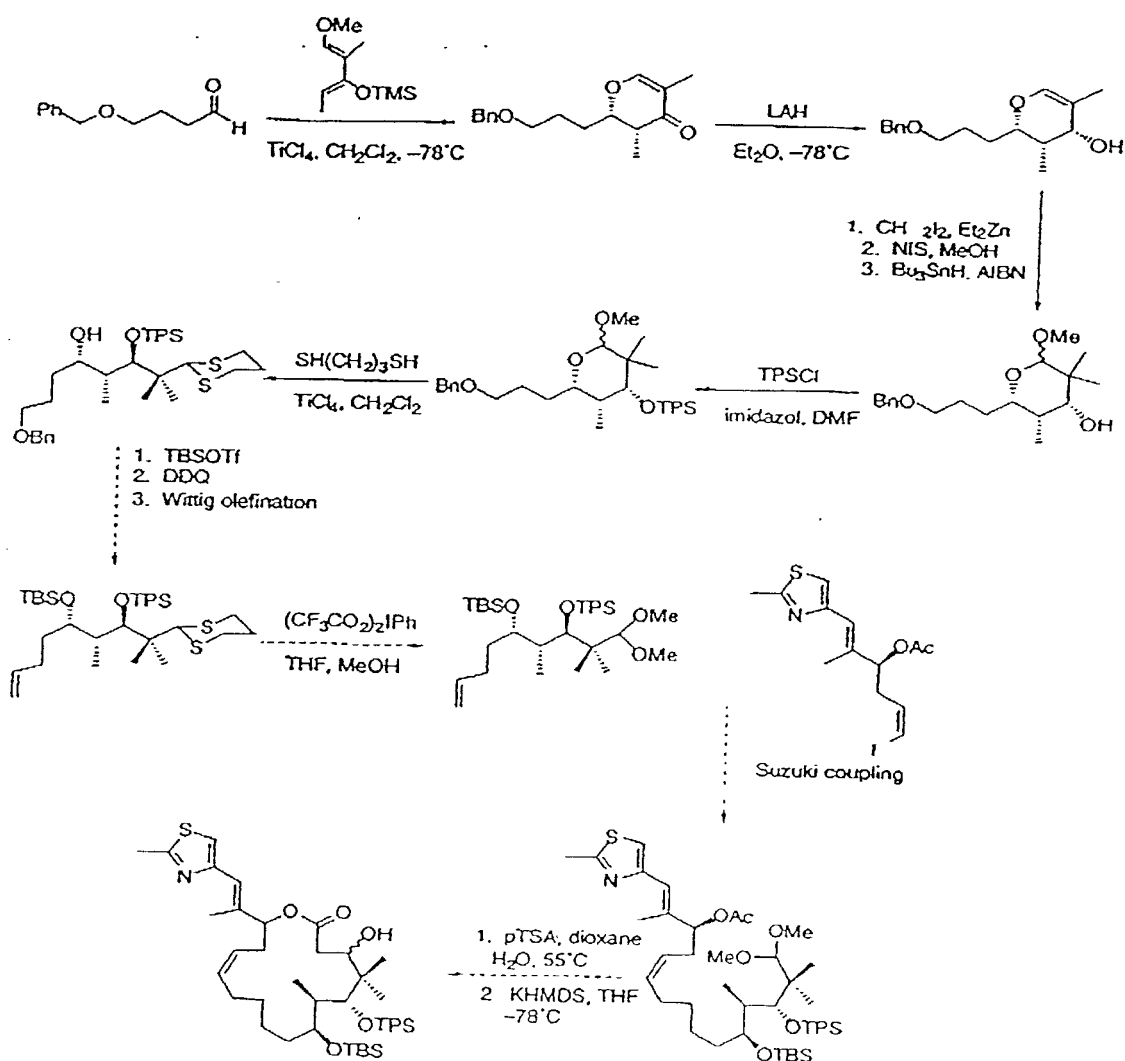


Figure 18

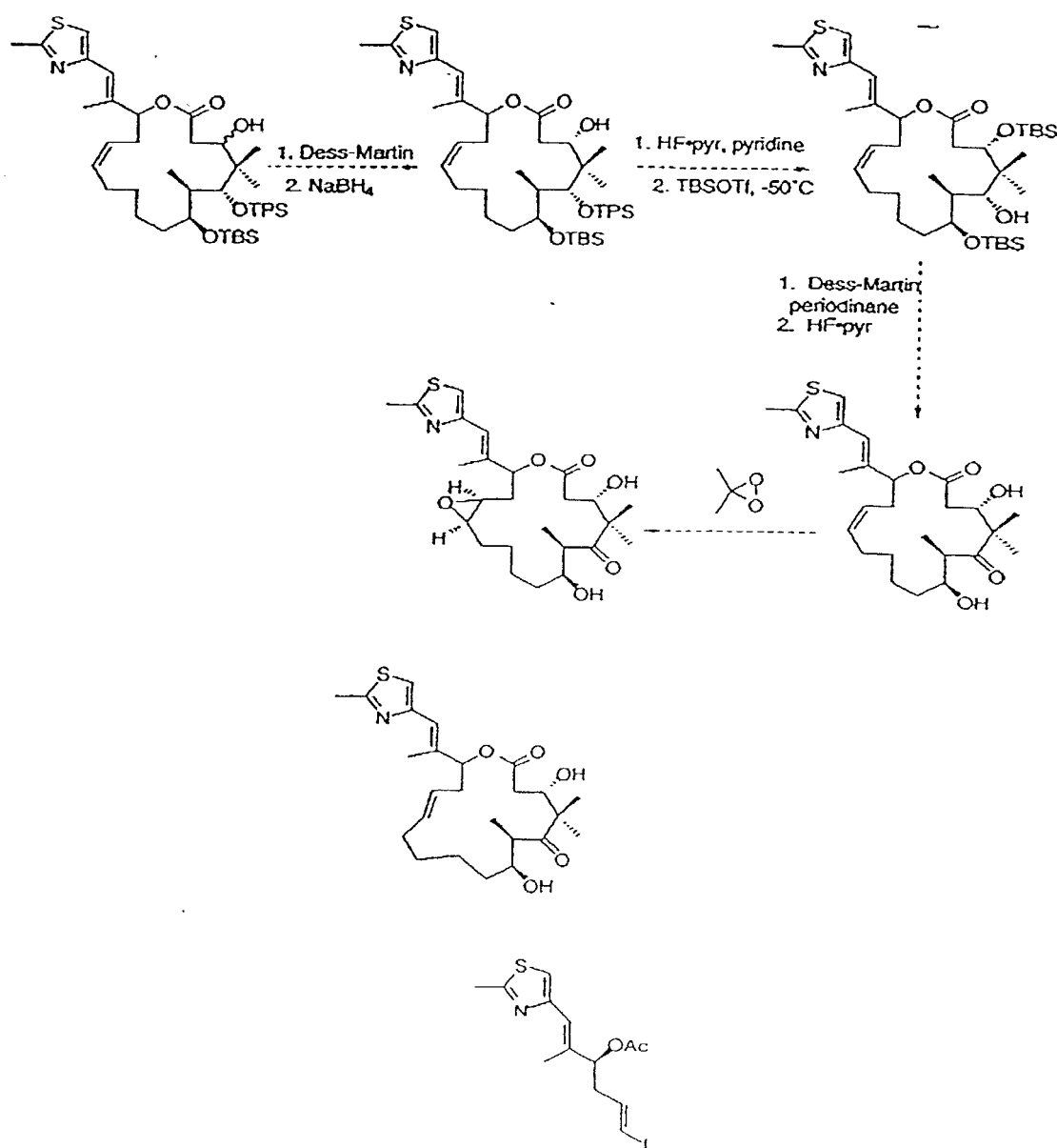


Figure 19

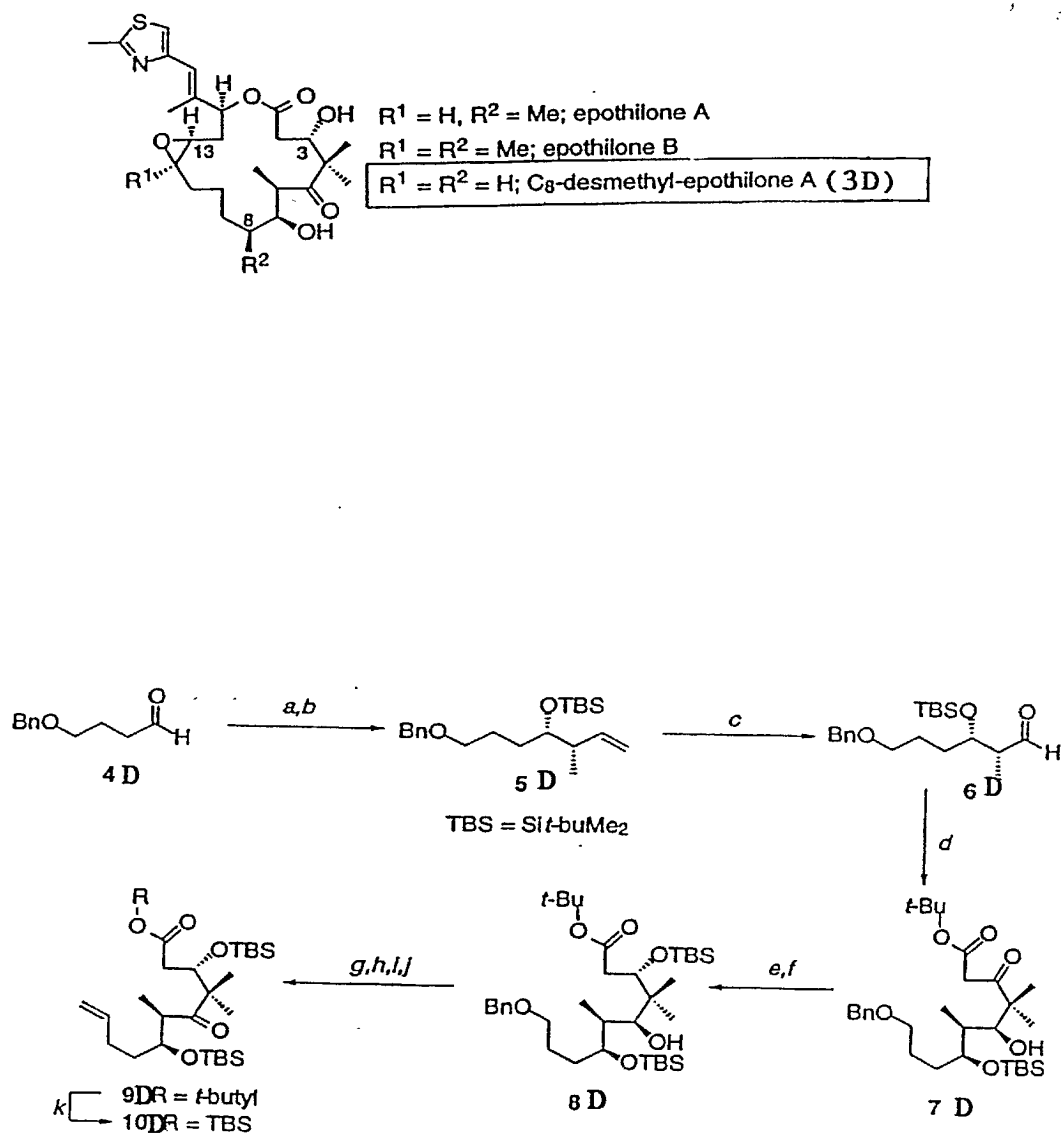


FIGURE 20

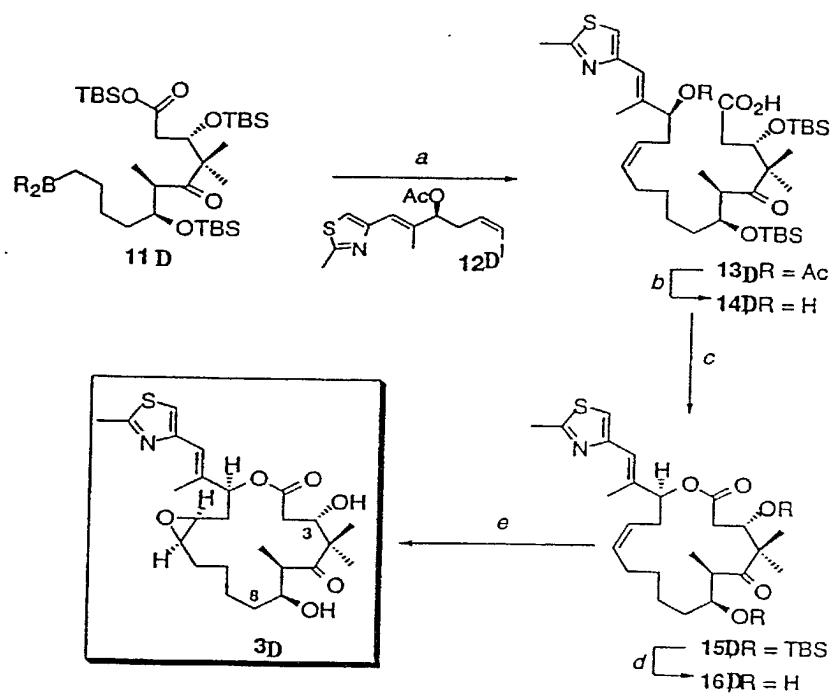


FIGURE 21

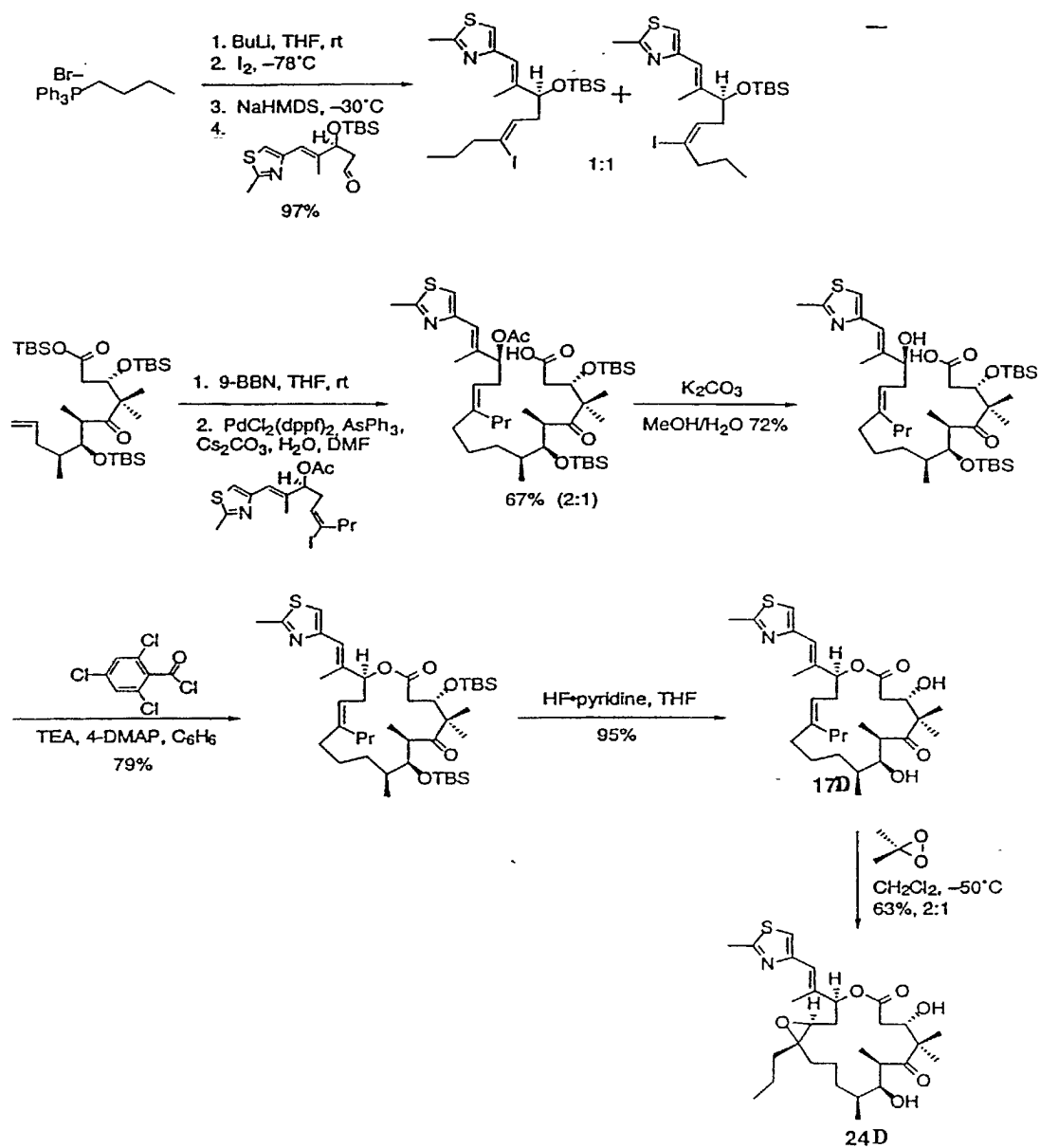


FIGURE 23

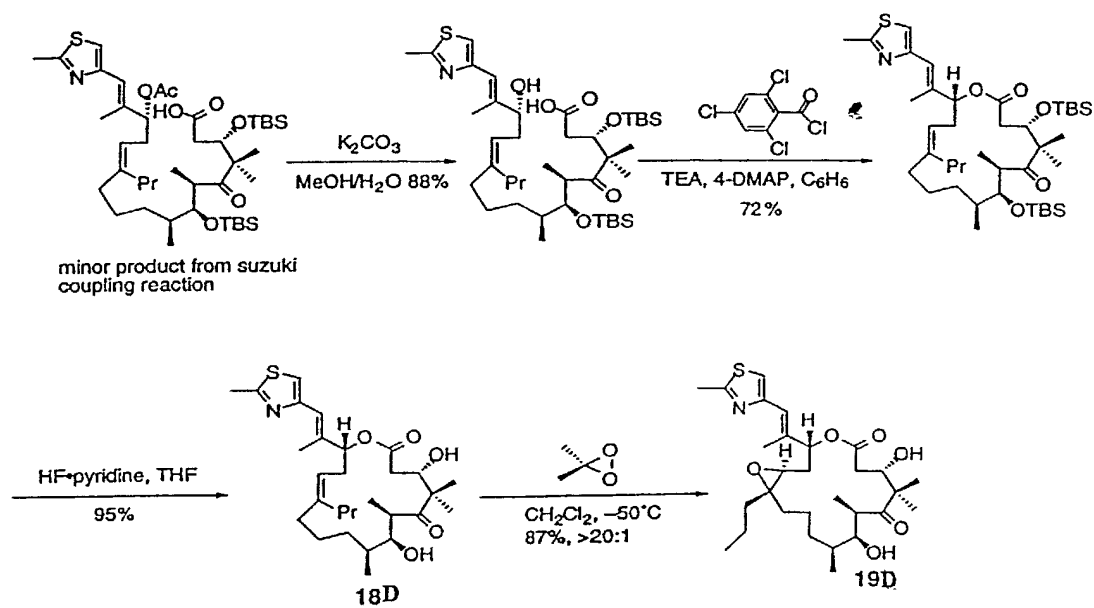


FIGURE 24



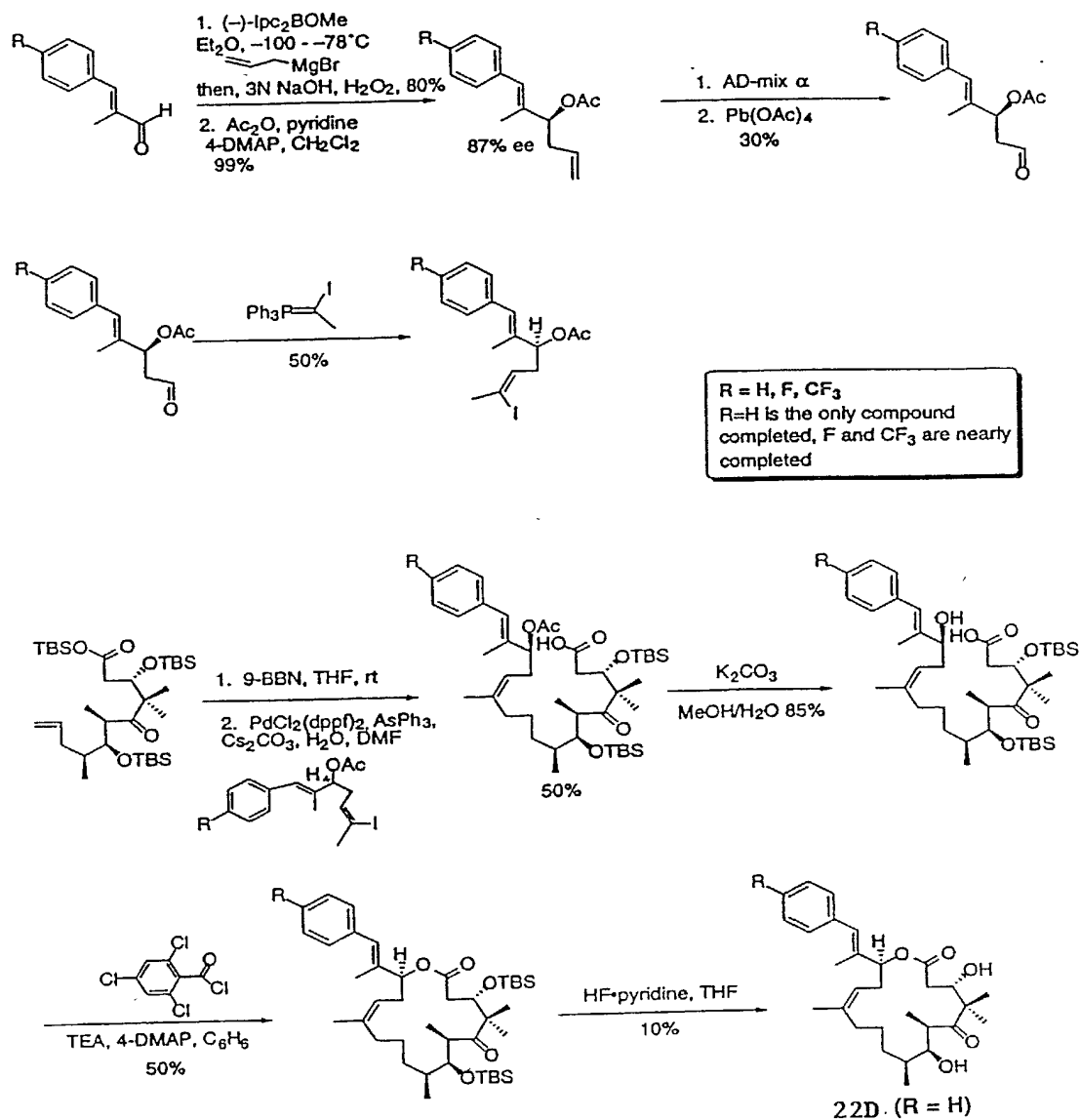


FIGURE 26

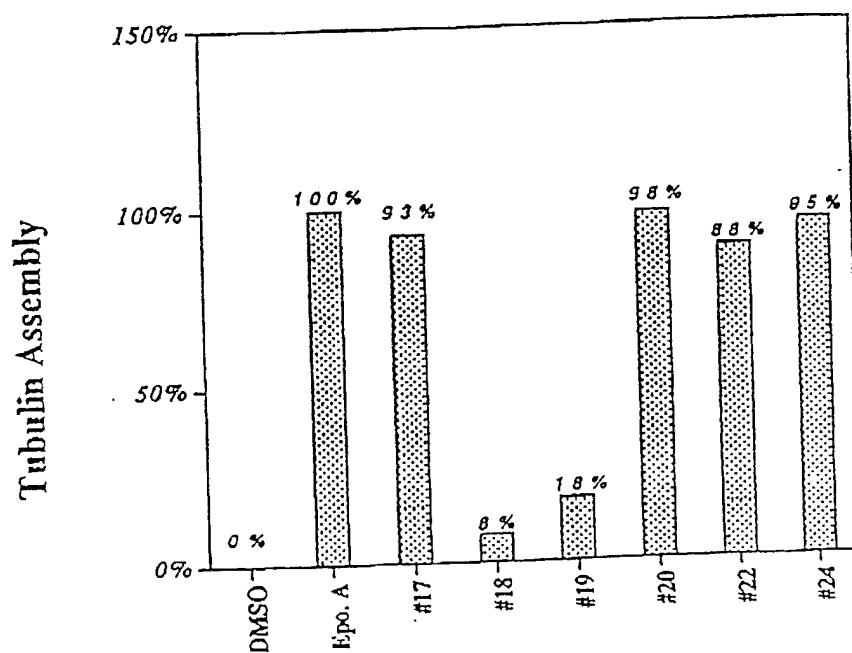
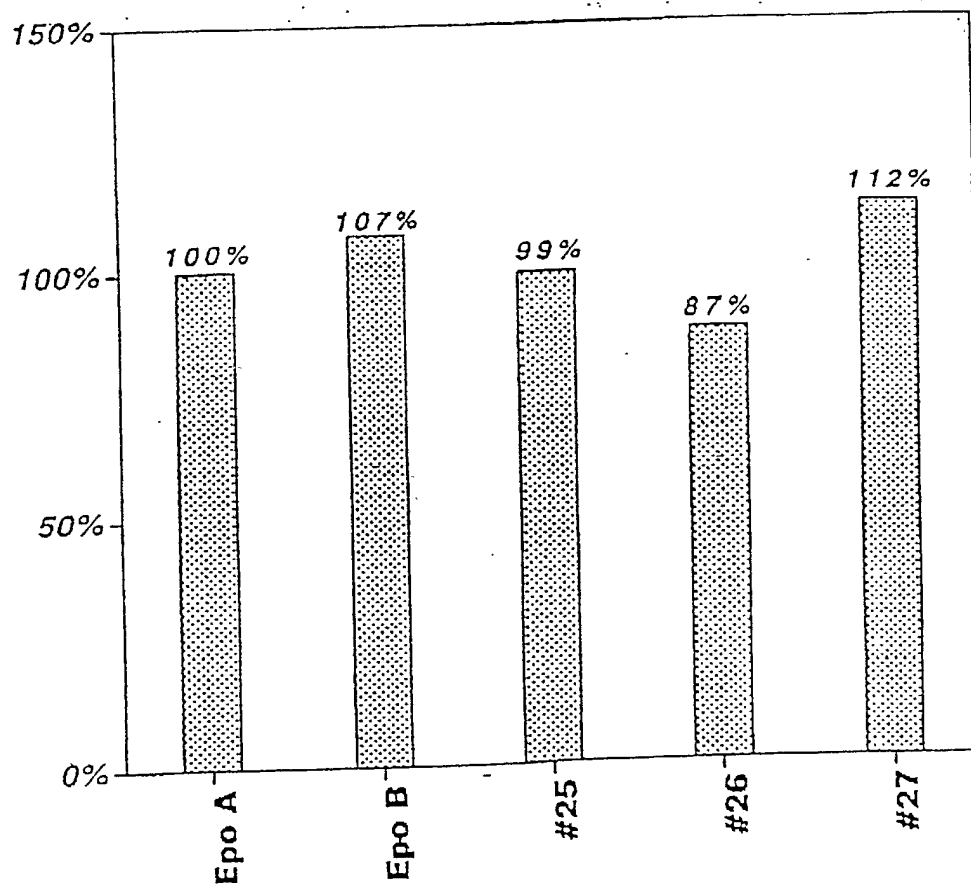


FIGURE 28

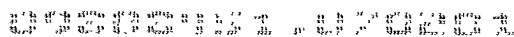


FIGURE 29

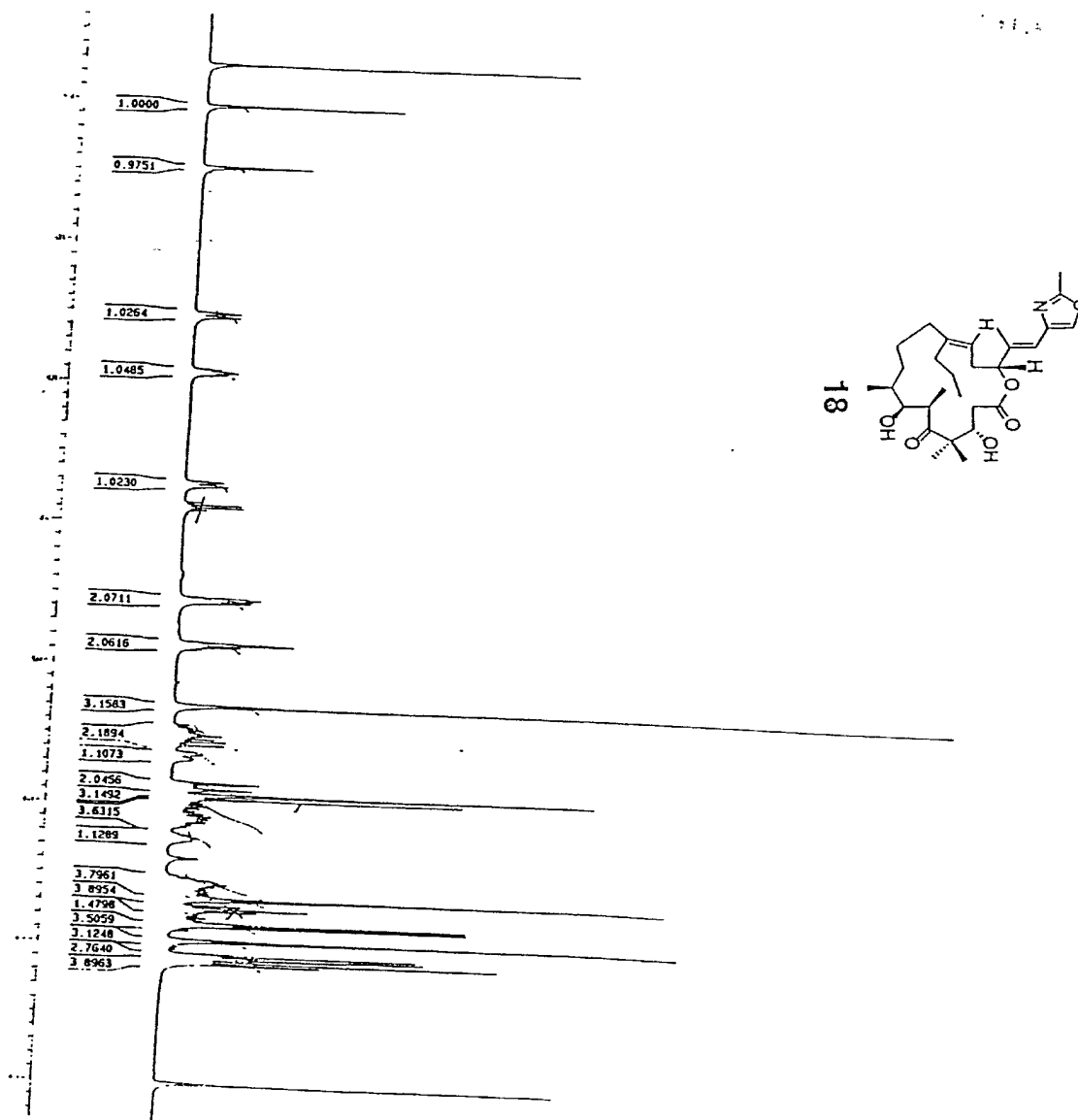


FIGURE 30

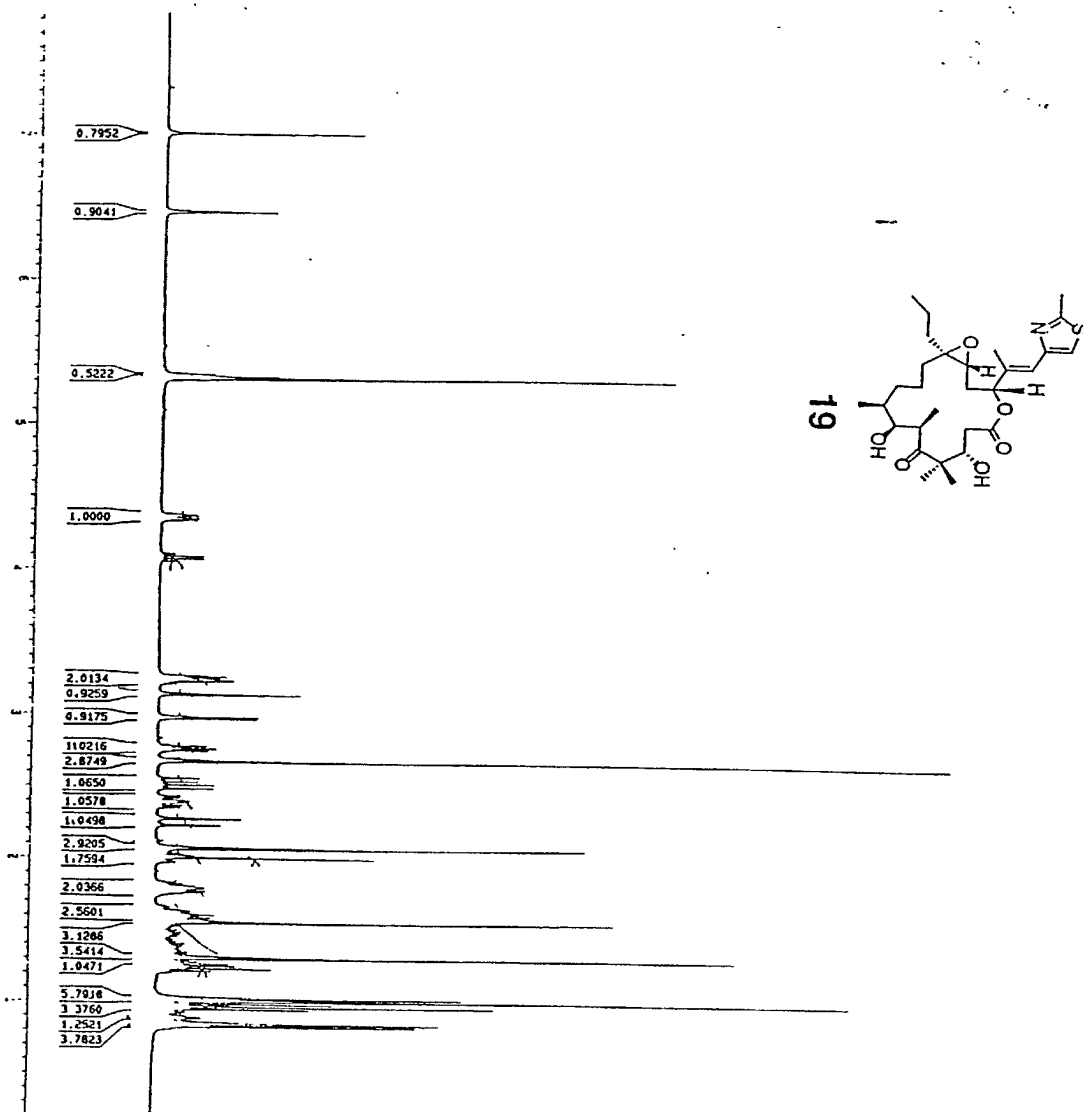


FIGURE 31

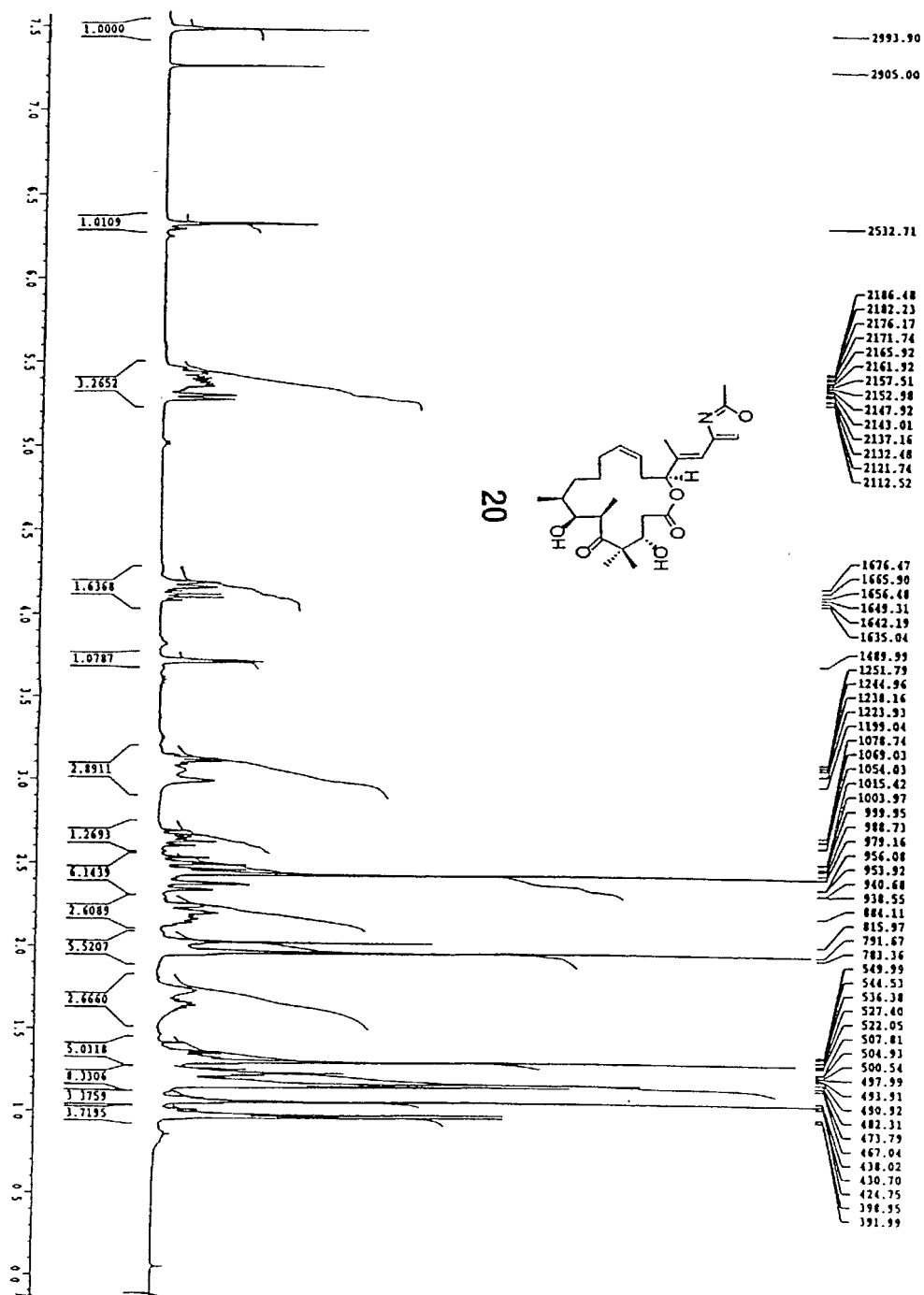


FIGURE 32

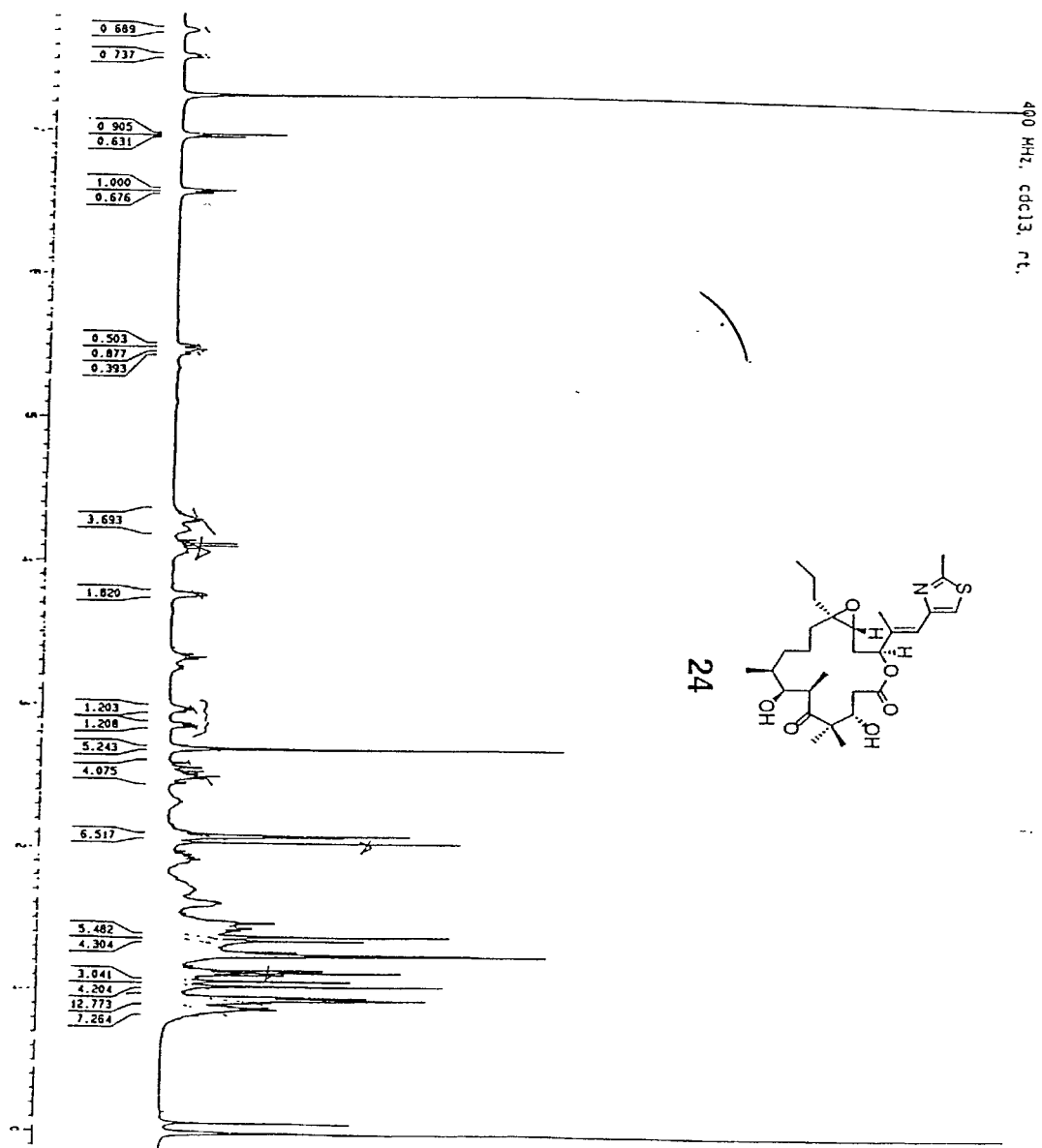


FIGURE 34

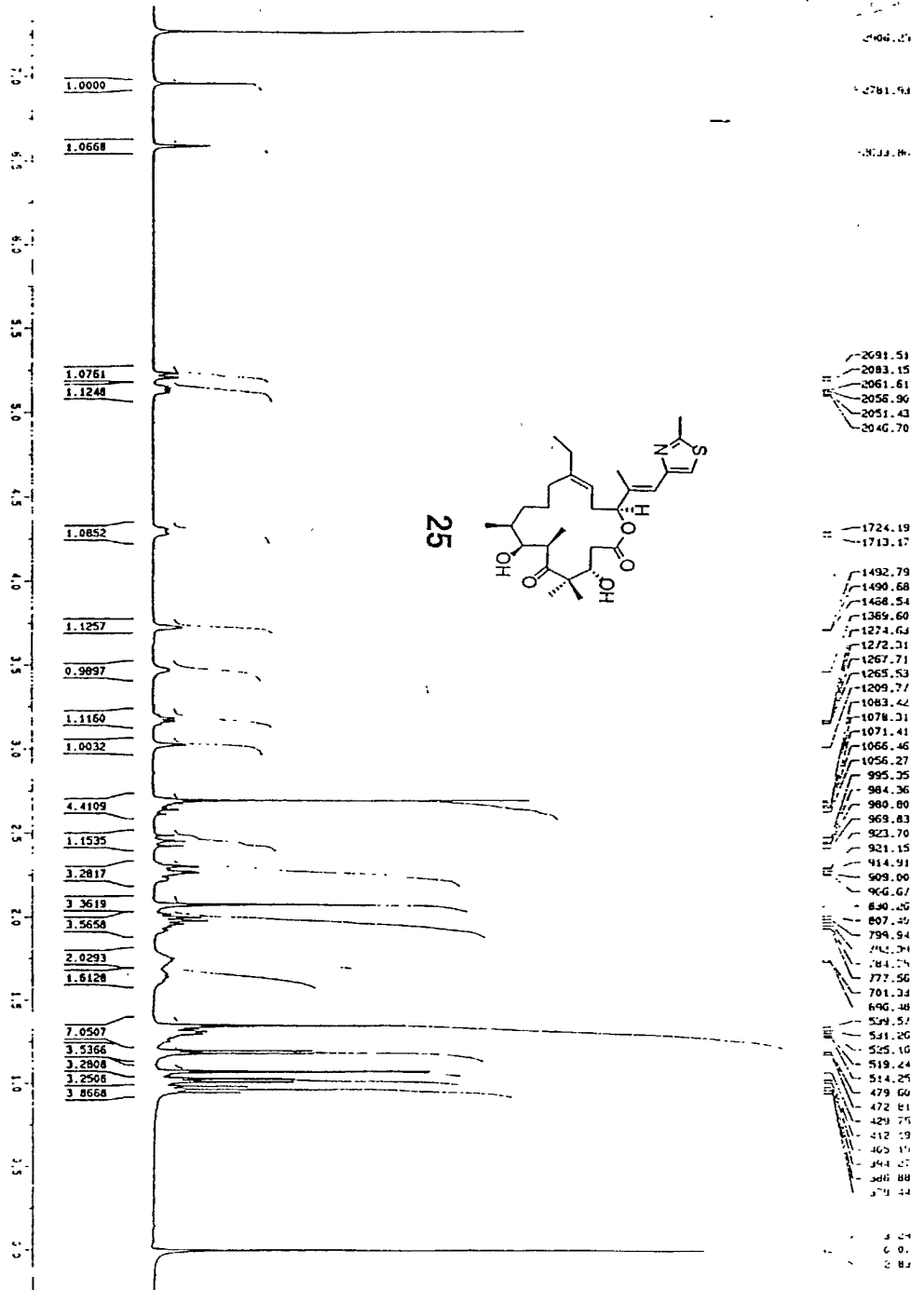
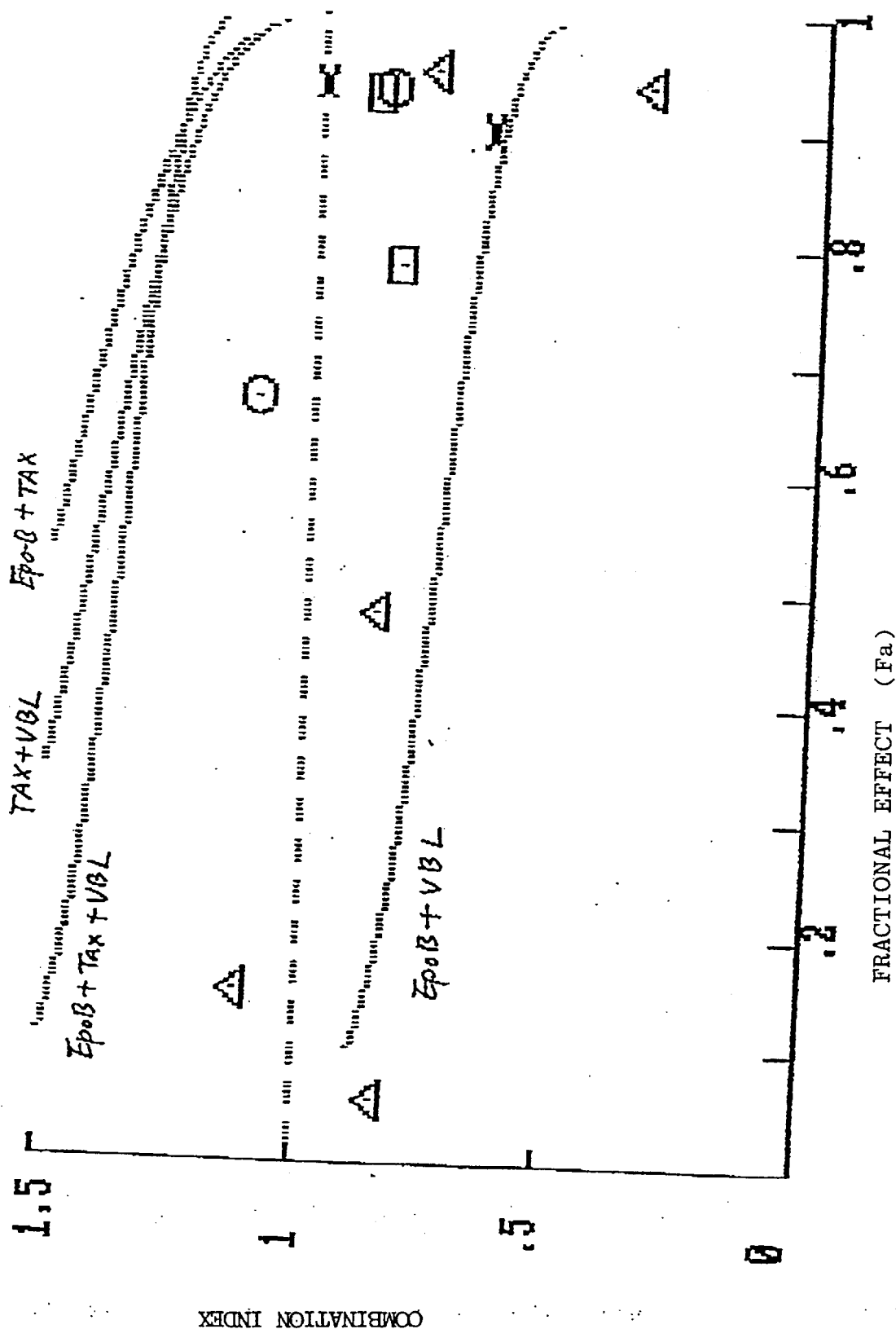
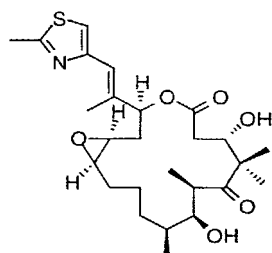


FIGURE 35

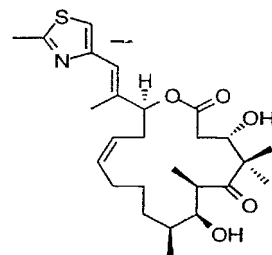


Figure 38

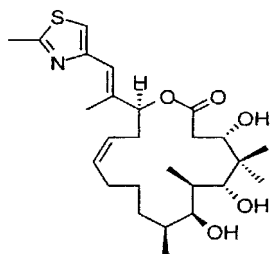




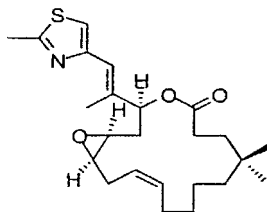
epothilone A
(0.0027)
[0.020]



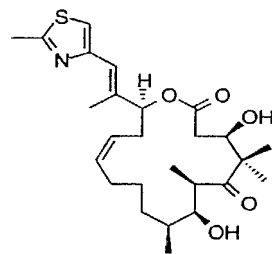
desoxyepothilone A
1
(0.022)
[0.012]



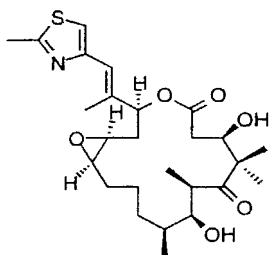
2
(14.23)
[6.28]



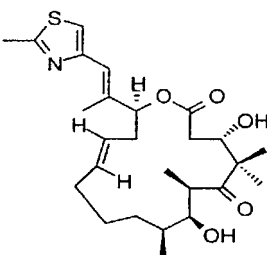
3
(271.1)
[22.4]



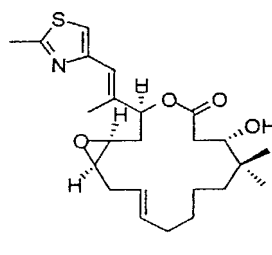
4
(2.12)
[43.0]



5
(>20)
[35.2]

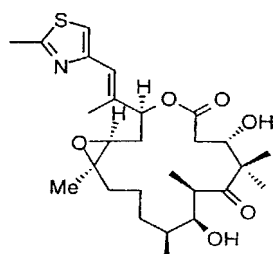


6
(0.052)
[0.035]



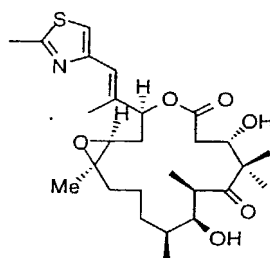
7
(7.36)
[9.82]

Fig. 39



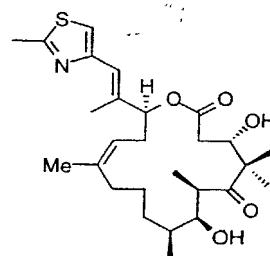
synthetic epothilone B

8
(0.00044)
[0.0026]



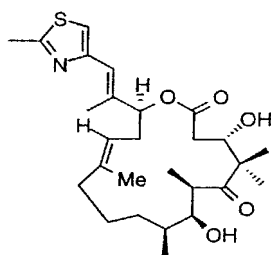
natural epothilone B

9
(0.00017)
[0.0012]

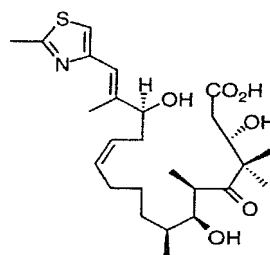


desoxyepothilone B

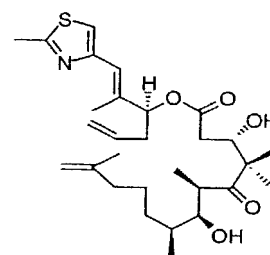
10
(0.0095)
[0.017]



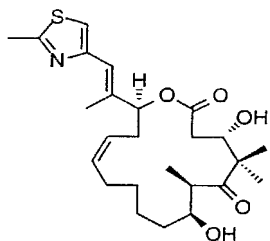
11
(0.090)
[0.262]



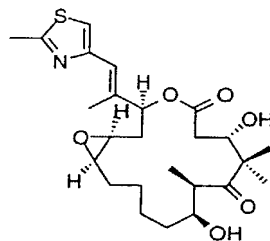
12
(0.79)
[>5]



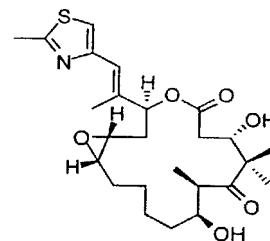
13
(11.53)
[5.63]



14
(5.42)
[5.75]



15
(0.96)
[5.95]



16
(7.47)
[16.48]

Fig. 40

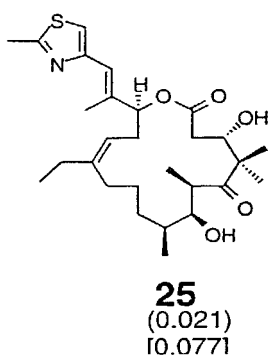
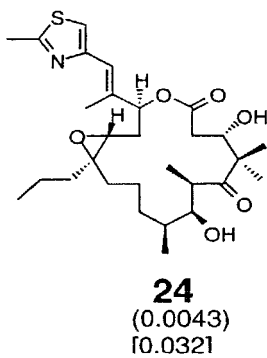
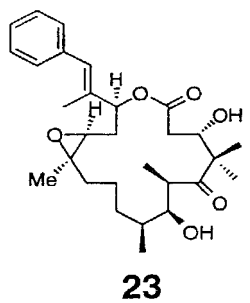
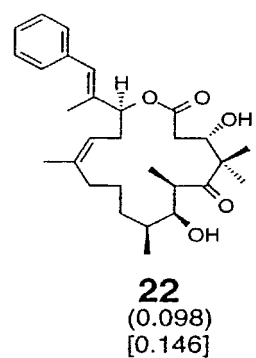
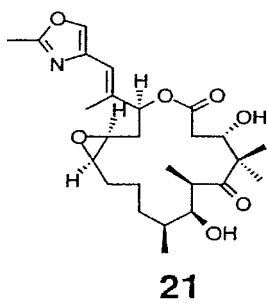
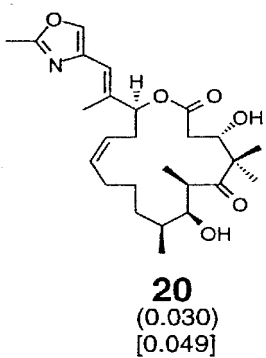
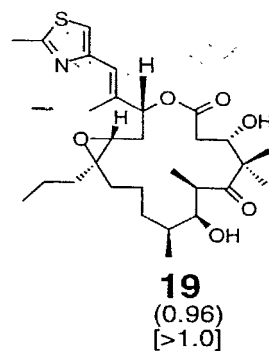
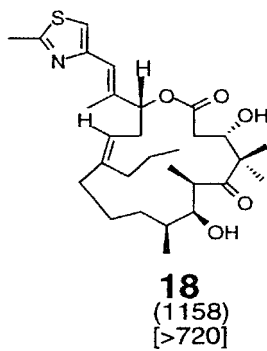
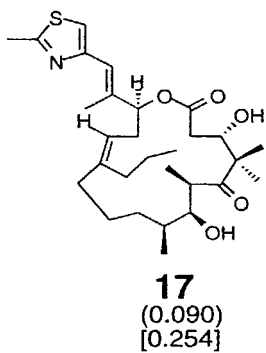
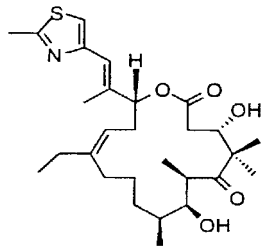
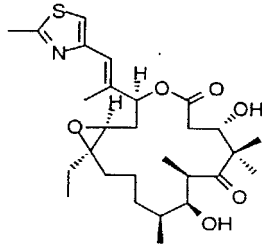


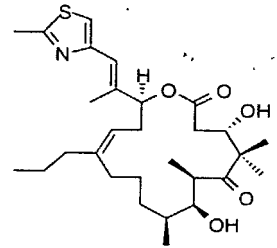
Fig. 41



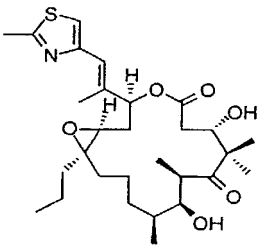
26
(0.055)
[0.197]



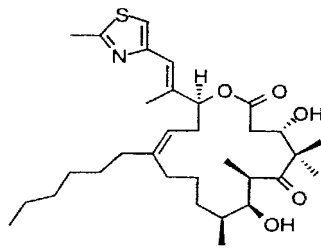
27
(0.0010)
[0.0072]



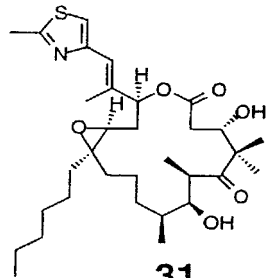
28
(0.039)
[0.067]



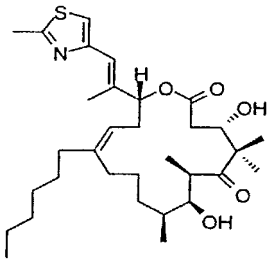
29
(0.0038)
[0.0064]



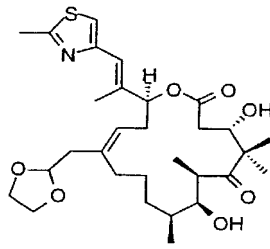
30
(0.044)
[0.108]



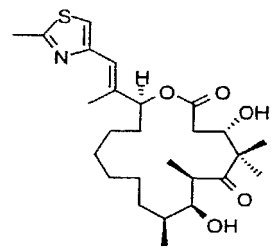
31
(0.027)
[0.049]



32
(0.063)
[0.380]



33
(0.0031)
[0.0093]



34
(0.143)
[0.276]

Fig. 42(A)

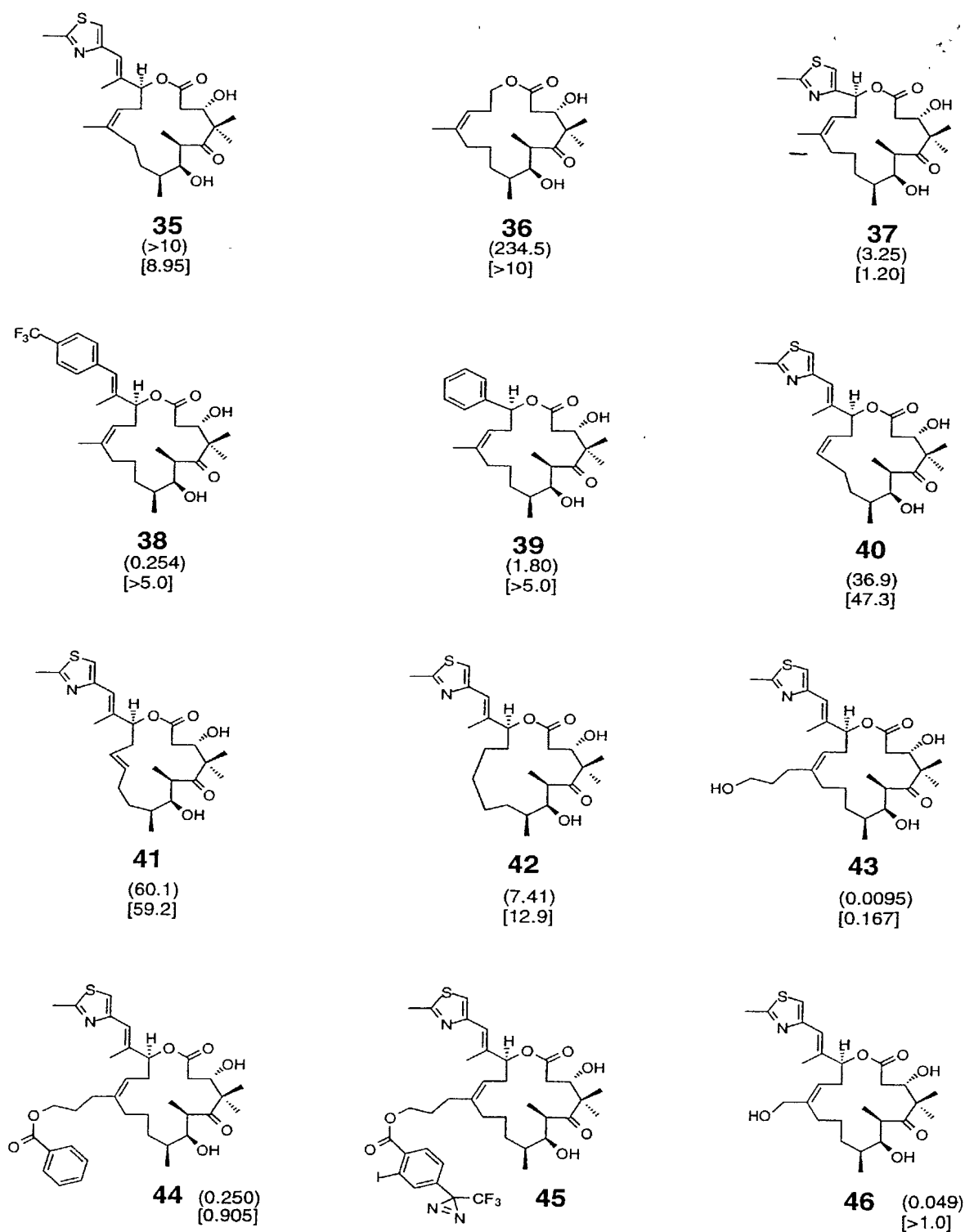


Fig. 42(B)

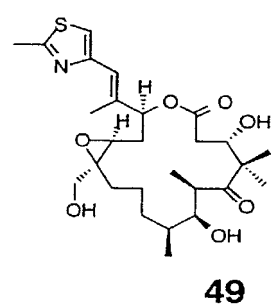
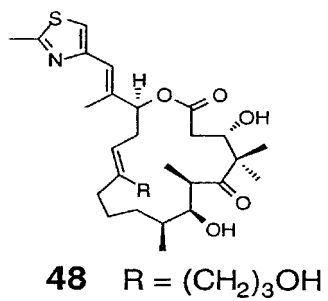
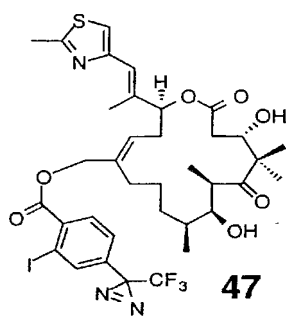
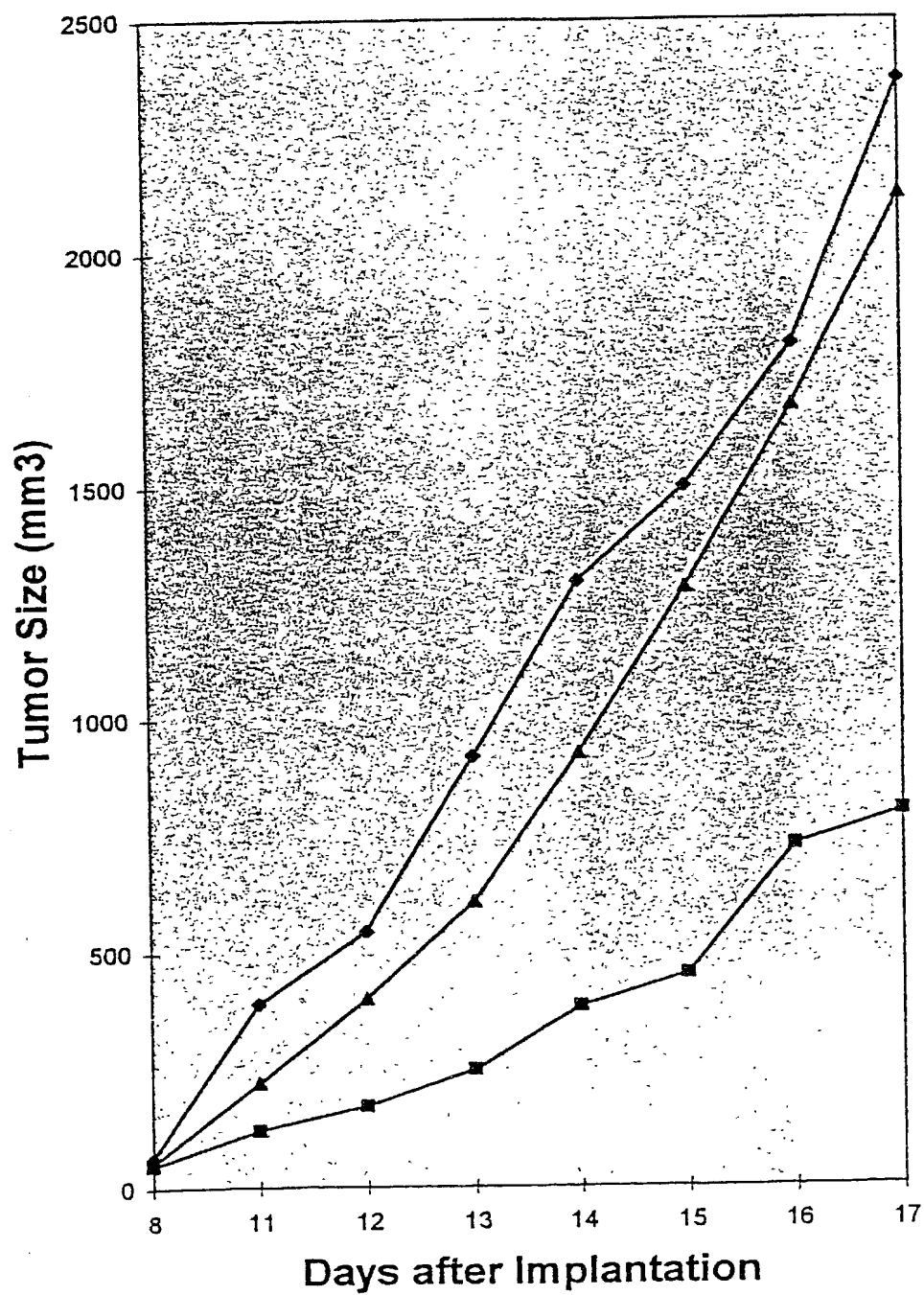
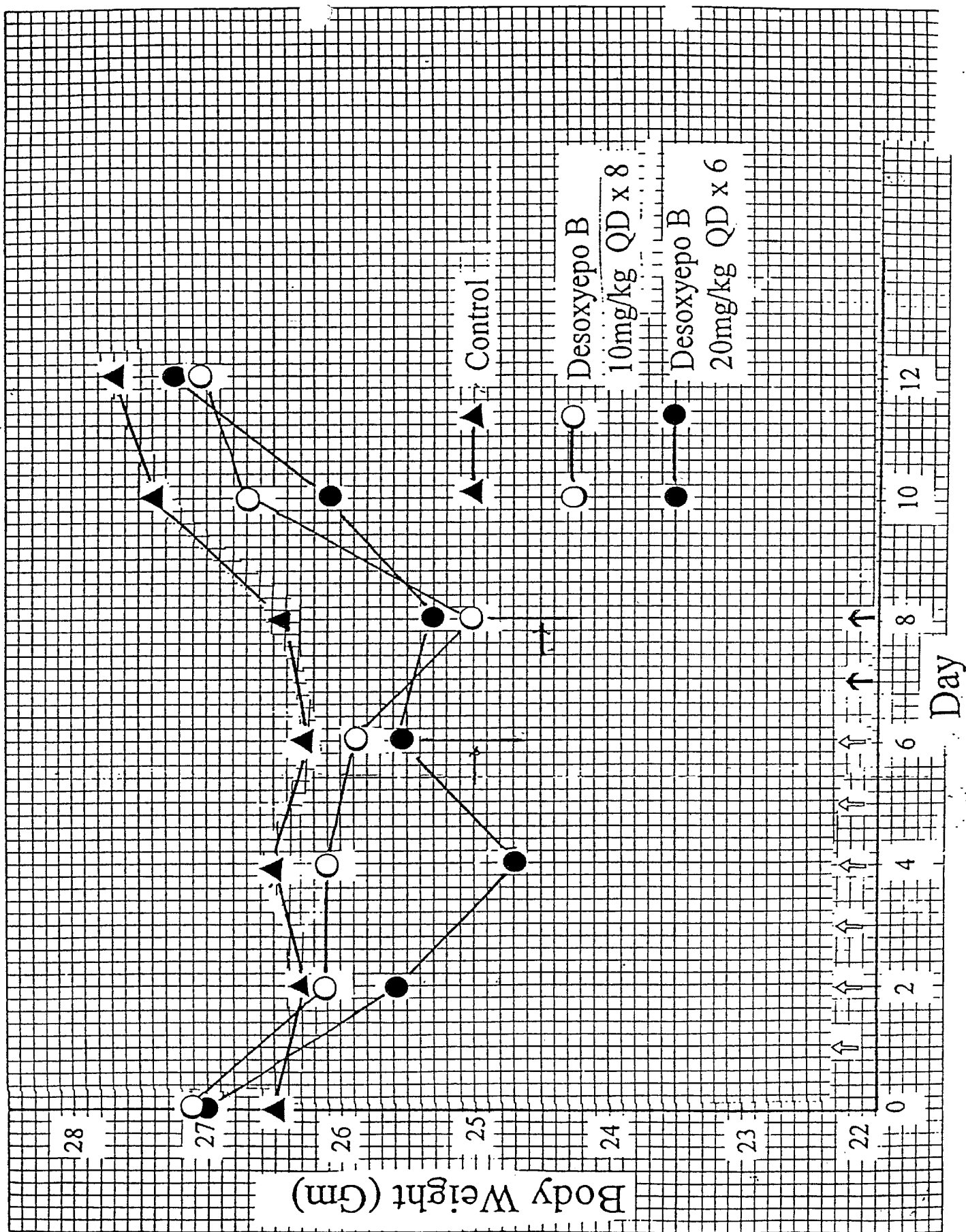


Fig. 42(C)

[illegible]



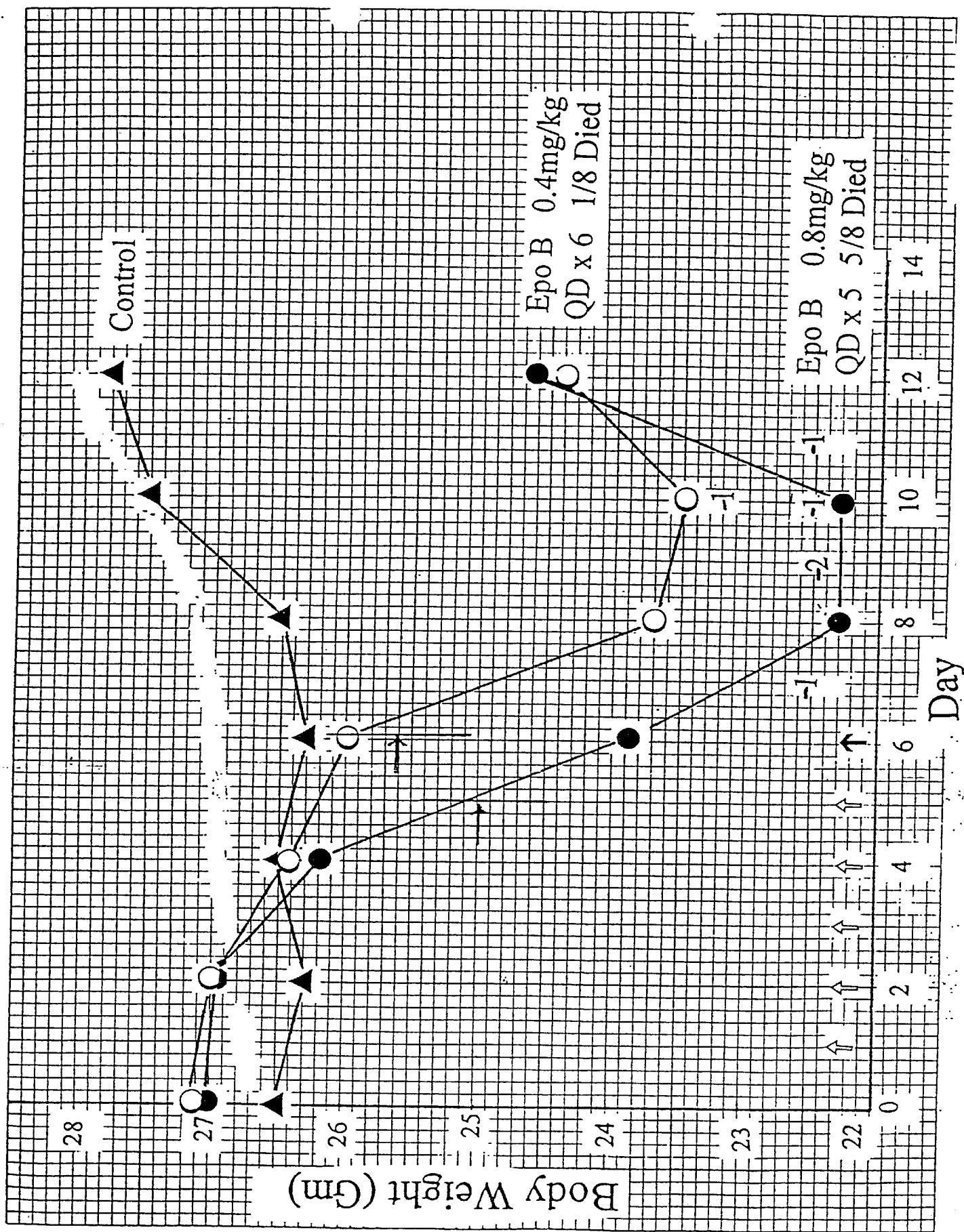


Fig. 44(B)

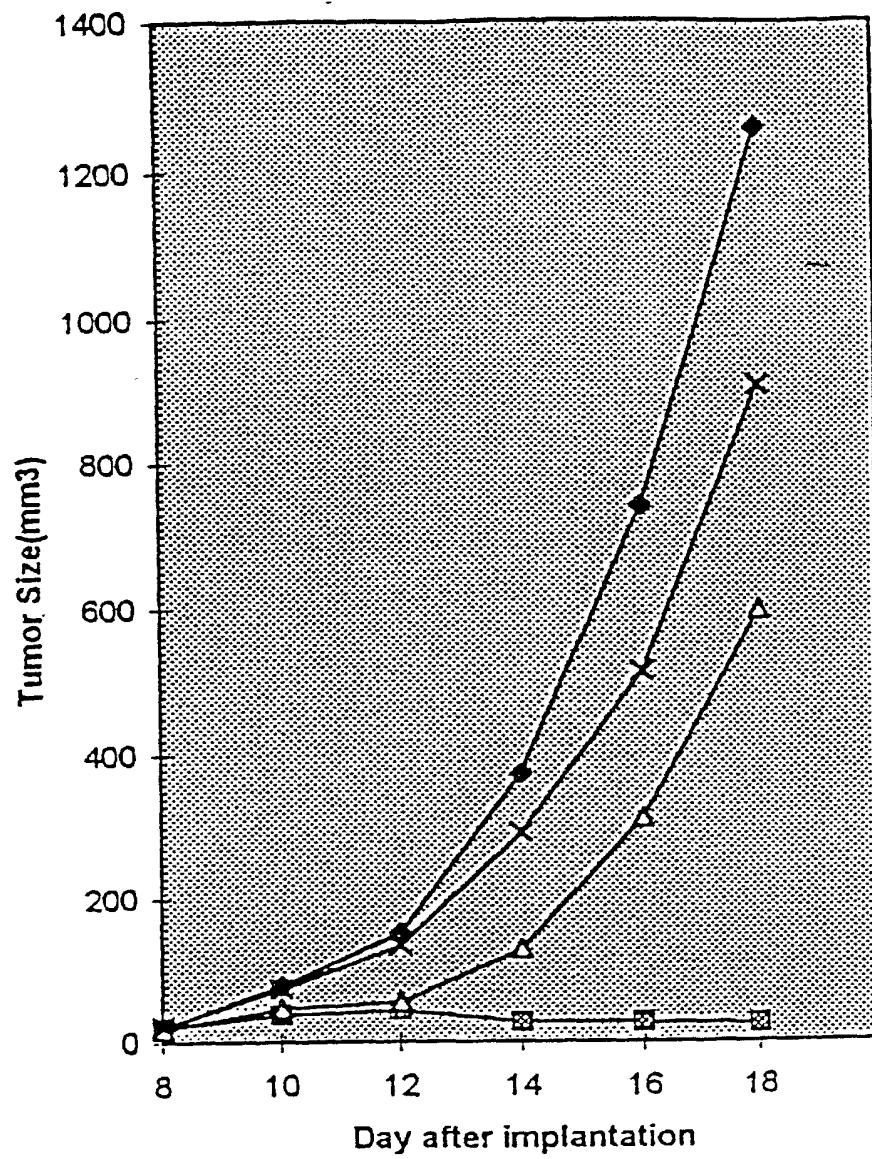
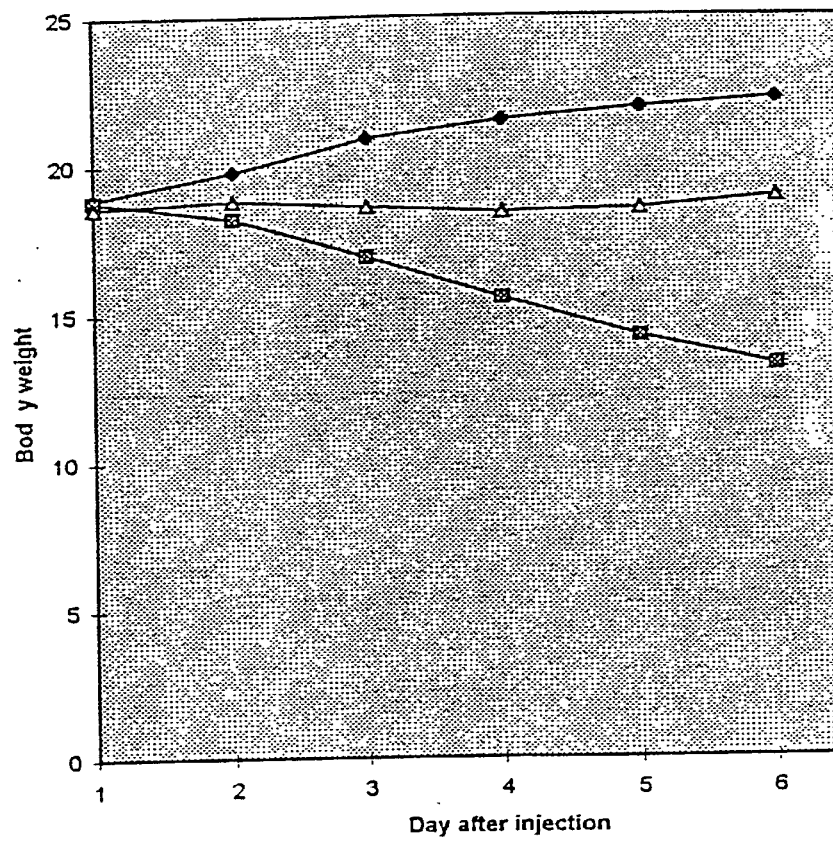
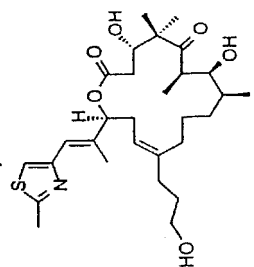


Fig. 46

Fig. 47





43

400 MHz, cdcl₃, rt.

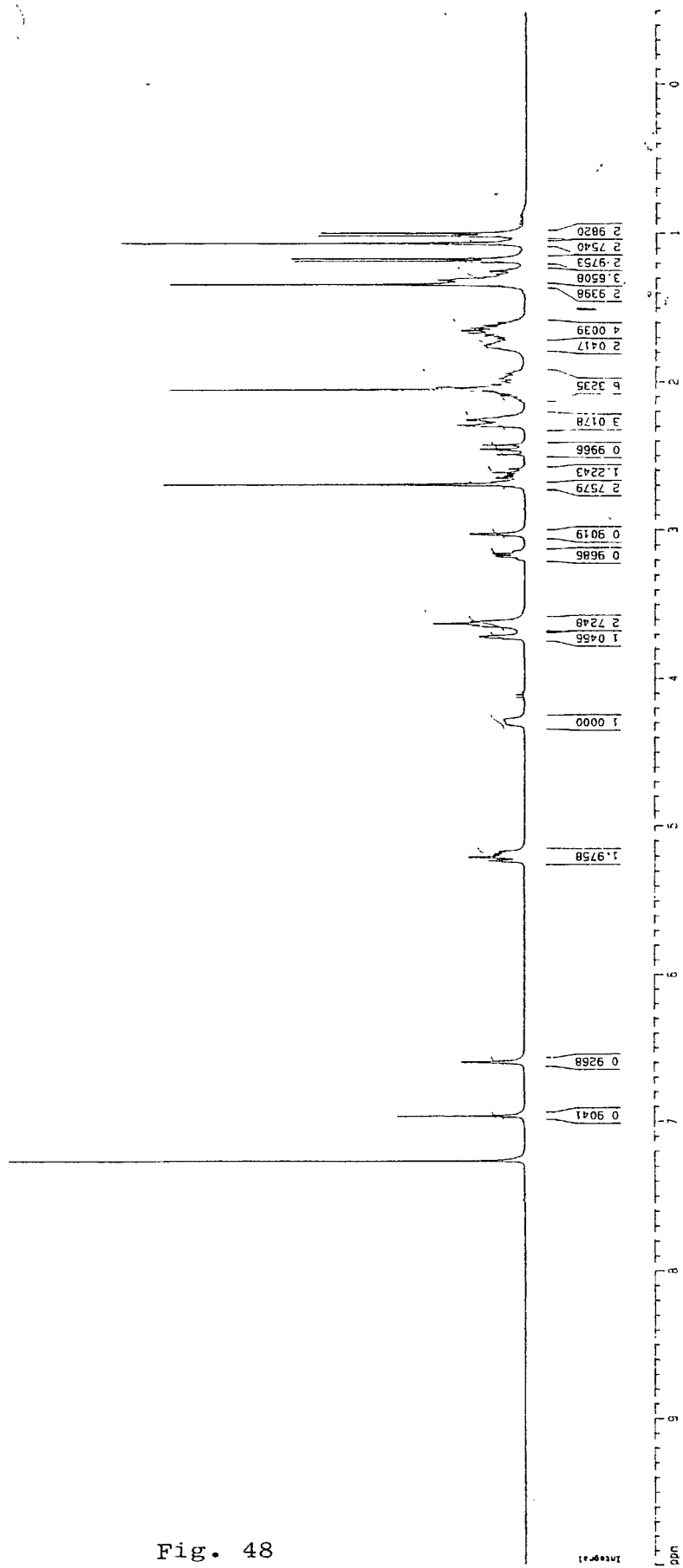


Fig. 48

100

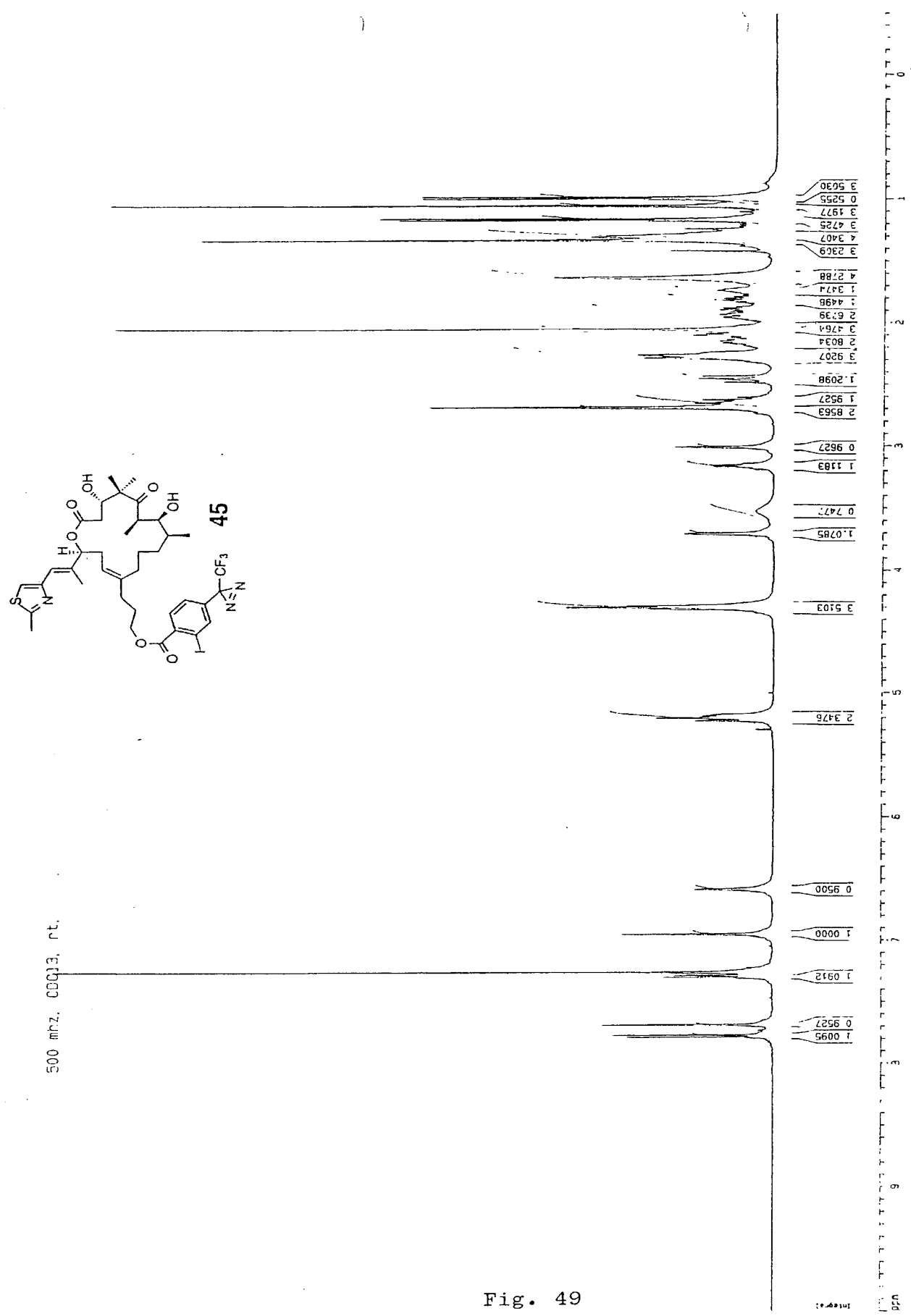
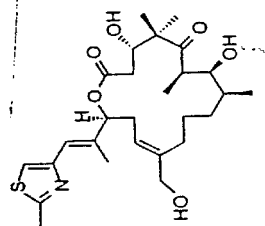


Fig. 49



46

400 MHz, cdc13, rt.

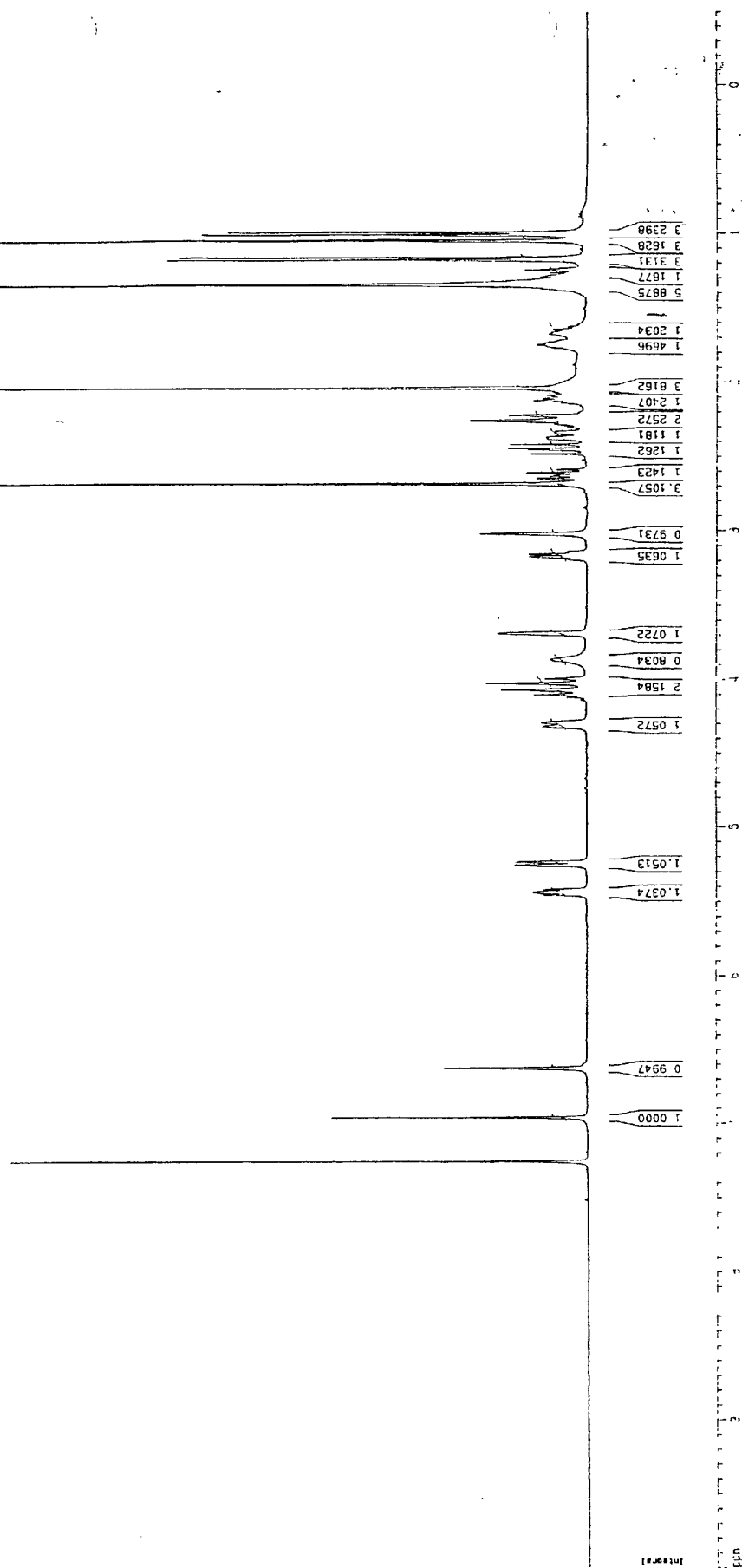
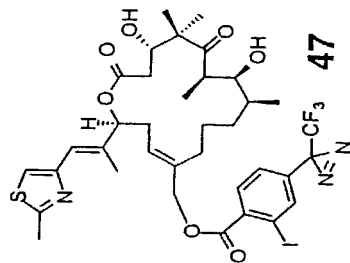


Fig. 50



500 mhz, CDCl₃, rt, crude alcohol mosher

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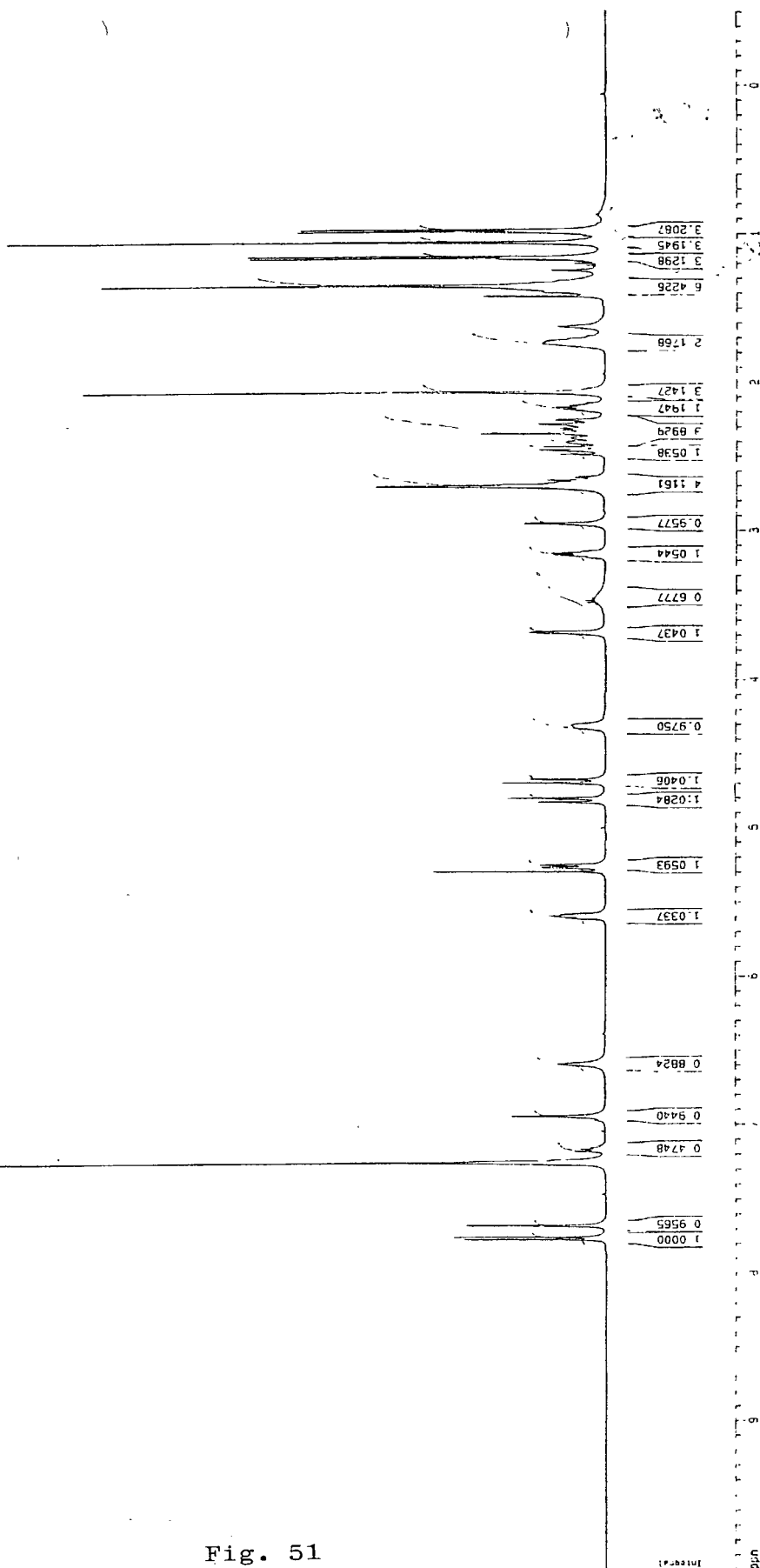


Fig. 51

